

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FAI Route 80
D-3 OVD SIN STR REPL 2010-37
Bureau & LaSalle Counties
Sheet 1 of 19
Contract Number 46102

PLANS FOR PROPOSED
FEDERAL AID HIGHWAY

FAI Route 80
D-3 OVD SIN STR REPL 2010-37
BUREAU AND LASALLE COUNTIES
C-60-039-10

INDEX OF SHEETS

<u>NO.</u>	<u>DESCRIPTION</u>
1	COVER SHEET
2	SUMMARY AND SCHEDULE OF QUANTITIES
3-19	SCHEDULE OF LOCATIONS FOR DISTRICT 3

STANDARDS

701101-02
701106-02
701400-04
701401-05
701411-06
701901-01
720021-02

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED DEC. 17 2009
PASSED

[Signature]
ENGINEER OF OPERATIONS

January 09 20 10
[Signature]
ACTING ENGINEER OF DESIGN AND ENVIRONMENT

APPROVED January 09 20 10
[Signature]
DIRECTOR DIVISION OF HIGHWAYS

JOINT UTILITY LOCATING INFORMATION FOR
EXCAVATIONS PHONE: 800-892-0123

CONTRACT NO. 46102

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
Summary and Schedule of Quantities

FAI Route 80
D-3 OVD SIN STR REPL 2010-37
Bureau & LaSalle Counties
Sheet 2 of 19
Contract Number 46102

CODE NUMBER	PAY ITEM	UNIT	Y002 - 1C 100% STATE TOTAL QUANTITY	Rural Bureau County	Rural LaSalle County
T9990710	REMOVE ^{AND} REINSTALL WALKWAY	FOOT	149.50	35.50	114.00
T9992530	REPLACE ^{AND} TIGHTEN ^{SIGN MOUNTING} CLIPS PER SIGN	EACH	13.00	4.00	9.00
T9992700	REMOVE ^{AND} REINSTALL SIGN PANEL	SQ FT	1,570.75	244.25	1,326.50
T9995400	FURNISH ^{AND} INSTALL SADDLE SHIM BLOCK	EACH	4.00	4.00	0.00
T9996300	OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	22.00	0.00	22.00
T9997255	FURNISH ^{AND} INSTALL TRUSS DAMPER	EACH	1.00	1.00	0.00
T9997700	FURNISH ^{AND} INSTALL SAFETY CHAIN	EACH	6.00	2.00	4.00
T9998815	REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	15.00	0.00	15.00
T9998600	TIGHTEN CANTILEVER CONNECTION	EACH	4.00	0.00	4.00
T9998995	DISCONNECT ^{AND} RECONNECT ELECTRIC SERVICE	EACH	5.00	2.00	3.00
X0324397	RELOCATE ELECTRIC SERVICE	EACH	2.00	2.00	0.00
Z0002005	ATTENUATOR BASE	SQ YD	120.00	120.00	0.00
Z0030350	IMPACT ATTENUATOR ^{AND} RELOCATE (NON-REDIRECTIVE), TEST LEVEL 3	EACH	4.00	4.00	0.00
67100100	MOBILIZATION	L SUM	1.00	0.23	0.77
70101700	TRAFFIC CONTROL ^{AND} PROTECTION	L SUM	1.00	0.23	0.77
73300200	OVERHEAD SIGN STRUCTURE-SPAN, TYPE II-A (4'-6" X5'-3")	FOOT	353.00	102.00	251.00
73305000	OVERHEAD SIGN STRUCTURE WALKWAY	FOOT	89.00	89.00	0.00
73400200	DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	54.00	54.00	0.00
73600100	REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	4.00	1.00	3.00
73700300	REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	4.00	4.00	0.00
73800100	STRUCTURAL STEEL SUPPORT FOR OVERHEAD SIGN STRUCTURE - SPAN	EACH	4.00	4.00	0.00
73801100	REMOVE ^{AND} RE ERECT OVEHEAD SIGN STRUCTURE-SPAN	EACH	1.00	1.00	0.00

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI Route 80
D-3 OVD SIN STR REPL 2010-37
Bureau & LaSalle Counties
Sheet 3 of 19
Contract Number 46102

District 3
Schedule of Overhead Sign Structure Replacement

Location No.:	3-01	State I.D. No.:	3S006I080R060.7				
County:	Bureau	Route:	I-80	M.P.:	60.7	Direction:	EB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
STRUCTURAL STEEL SUPPORT FOR OVERHEAD SIGN STRUCTURE	EACH	2.00					
OVERHEAD SIGN STRUCTURE-SPAN, TYPE II-A	FOOT	102.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	244.25					
REMOVE & REINSTALL WALKWAY	FOOT	35.50					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	2.00					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	28.60					
REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	2.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					
ATTENUATOR BASE	SQ YD	60.00					
IMPACT ATTENUATORS RELOCATE (NON RE-DIRECTIVE) TEST LEVEL	EACH	2.00					

Location No.:	3-02	State I.D. No.:	3S006I080L062.5				
County:	Bureau	Route:	I-80	M.P.:	62.5	Direction:	WB
Description of Work	Unit	Quantity					
REMOVE & RE-ERCT OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
STRUCTURAL STEEL SUPPORT FOR OVERHEAD SIGN STRUCTURE	EACH	2.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	2.00					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					
RELOCATE ELECTRIC SERVICE	EACH	1.00					
DRILLED SHAFT CONCRETE FOUNDATIONS	CU YD	25.40					
REMOVE CONCRETE FOUNDATION-OVERHEAD	EACH	2.00					
FURNISH & INSTALL INTERNAL TRUSS DAMPER	EACH	1.00					
OVERHEAD SIGN STRUCTURE WALKWAY	FOOT	89.00					
FURNISH & INSTALL SADDLE SHIM BLOCK	EACH	4.00					
ATTENUATOR BASE	SQ YD	60.00					
IMPACT ATTENUATORS RELOCATE (NON RE-DIRECTIVE) TEST LEVEL	EACH	2.00					

Location No.:	3-03	State I.D. No.:	3S050I080R078.1				
County:	LaSalle	Route:	I-80	M.P.:	78.1	Direction:	EB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
OVERHEAD SIGN STRUCTURE-SPAN, TYPE II-A	FOOT	90.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	496.50					
REMOVE & REINSTALL WALKWAY	FOOT	48.00					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	3.00					
OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	4.00					
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	3.00					

Location No.:	3-04	State I.D. No.:	3S050I080L079.4				
County:	LaSalle	Route:	I-80	M.P.:	79.4	Direction:	WB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
OVERHEAD SIGN STRUCTURE-SPAN, TYPE II-A	FOOT	80.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	396.25					
REMOVE & REINSTALL WALKWAY	FOOT	33.00					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	152.00					
OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	4.00					
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	2.00					

Location No.:	3-05	State I.D. No.:	3S050I080L080.0				
County:	LaSalle	Route:	I-80	M.P.:	80.0	Direction:	WB
Description of Work	Unit	Quantity					
REMOVE OVERHEAD SIGN STRUCTURE-SPAN	EACH	1.00					
OVERHEAD SIGN STRUCTURE-SPAN, TYPE II-A	FOOT	81.00					
REMOVE & REINSTALL SIGN PANEL	SQ FT	433.75					
REMOVE & REINSTALL WALKWAY	FOOT	33.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	1.00					
DISCONNECT/RECONNECT ELECTRIC SERVICE	EACH	1.00					
OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	4.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					

Location No.:	3-06	State I.D. No.:	3C050I080L075.2				
County:	La Salle	Route:	I-80	M.P.:	75.2	Direction:	WB
Description of Work	Unit	Quantity					
OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	1.00					
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	3.00					
TIGHTEN CANTILEVER CONNECTION	EACH	2.00					

Location No.:	3-07	State I.D. No.:	3S050I080R077.1				
County:	La Salle	Route:	I-80	M.P.:	77.1	Direction:	EB
Description of Work	Unit	Quantity					
OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	4.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	1.00					
FURNISH & INSTALL SAFETY CHAIN	EACH	2.00					

Location No.:	3-08	State I.D. No.:	3S050I080R077.6				
County:	La Salle	Route:	I-80	M.P.:	77.6	Direction:	EB
Description of Work	Unit	Quantity					
OVERHEAD SIGN SUPPORT GROUT REPAIR	EACH	4.00					
REPAIR HANDRAIL LOCKING PIN CONNECTION	EACH	5.00					
REPLACE / TIGHTEN CLIPS PER SIGN	EACH	2.00					

GENERAL NOTES

DESIGN: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. ("AASHTO Specifications")

CONSTRUCTION: Current (at time of letting) Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, Supplemental Specifications and Special Provisions. ("Standard Specifications")

LOADING: 90 M.P.H. WIND VELOCITY

WIND LOADING: 30 p.s.f. normal to Sign Panel Area and truss elements not behind sign Loading Diagram.

WALKWAY LOADING: Dead load plus 500 lbs. concentrated live load.

DESIGN STRESSES:
Field Units
f'c = 3,500 p.s.i.
fy = 60,000 p.s.i. (reinforcement)

WELDING: All welds to be continuous unless otherwise shown. All welding to be done in accordance with current AWS D1.1 and D1.2 Structural Welding Codes (Steel and Aluminum) and the Standard Specifications.

MATERIALS: Aluminum Alloys as shown throughout plans. All Structural Steel Pipe shall be ASTM A53 Grade B with a minimum yield of 35,000 p.s.i., or A500 Grade B or C with a minimum yield of 46,000 p.s.i. If A500 pipe is substituted for A53, then the outside diameter shall be as detailed and wall thickness greater than or equal to A53.

All Structural Steel Plates and Shapes shall conform to AASHTO M270 Gr. 36, Gr. 50 or Gr. 50W*. Stainless steel for shims, sleeves and handhole covers shall be ASTM A240, Type 302 or 304, or another alloy suitable for exterior exposure and acceptable to the Engineer. The steel pipe and stiffening ribs at the base plate for the column shall have a minimum longitudinal Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. (Zone 2) before galvanizing.

FASTENERS FOR ALUMINUM TRUSSES: All bolts noted as "high strength" must satisfy the requirements of AASHTO M164 (ASTM A325), or approved alternate, and must have matching lock nuts. Threaded studs for splices (if Members interfere) must satisfy the requirements of ASTM A449, ASTM A193, Grade B7, or approved alternate, and must have matching lock nuts. Bolts and lock nuts not required to be high strength must satisfy the requirements of ASTM A307. All bolts and lock nuts must be hot dip galvanized per AASHTO M232. The lock nuts must have nylon or steel inserts. A stainless steel flat washer conforming to ASTM A240 Type 302 or 304, is required under both head and nut or under both nuts where threaded studs are used. High strength bolt installation shall conform to Article 505.04 (f) (2)d of the IDOT Standard Specifications for Road and Bridge Construction. Rotational capacity ("ROCAP") testing of bolts will not be required.

U-BOLTS AND EYEBOLTS: U-Bolts and Eyebolts must be produced from ASTM A276 Type 304, 304L, 316 or 316L, Condition A, cold finished stainless steel, or an equivalent material acceptable to the Engineer. All nuts for U-Bolts and Eyebolts must be lock nuts material to ASTM A307 with nylon or steel inserts and hot dip galvanized per AASHTO M232. A stainless steel flat washer conforming to ASTM A240, Type 302 or 304, is required under each U-Bolt and Eyebolt lock nut.

GALVANIZING: All Steel Grating, Plates, Shapes and Pipe shall be Hot Dip Galvanized after fabrication in accordance with AASHTO M111. Painting is not permitted.

ANCHOR RODS: Shall conform to AASHTO M314 Gr. 36 or 55 with a minimum Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F.

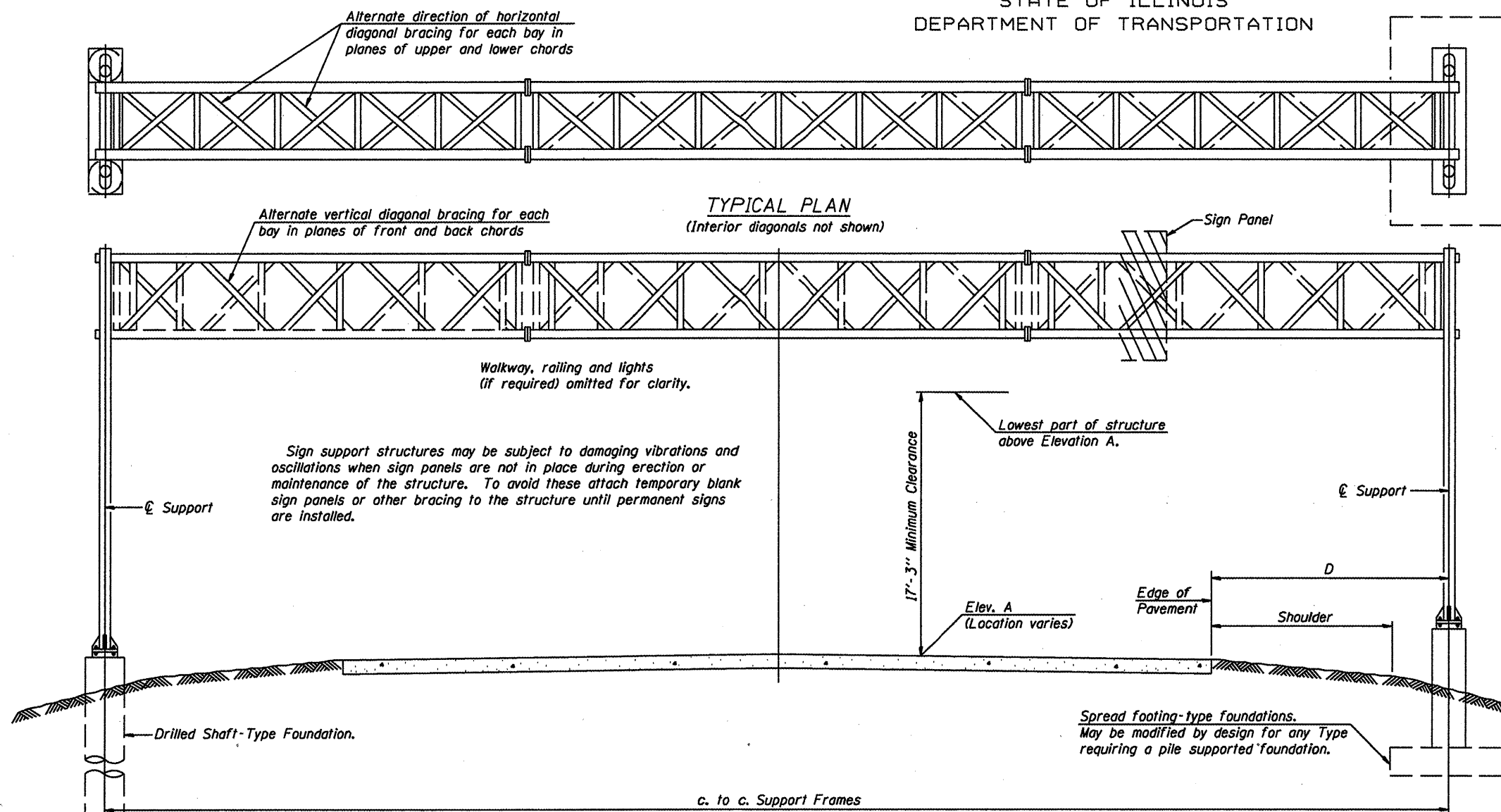
CONCRETE SURFACES: All concrete surfaces above an elevation 6" below the lowest final ground line at each foundation shall be cleaned and coated with Bridge Seat Sealer in accordance with the Standard Specifications.

REINFORCEMENT BARS: Reinforcement Bars designated (E) shall be epoxy coated in accordance with the Standard Specifications.

* If M270 Gr. 50W (M222) steel is proposed, chemistry for plate to be used shall first be approved by the Engineer as suitable for galvanizing and welding.

OVERHEAD SIGN STRUCTURES
GENERAL PLAN & ELEVATION
ALUMINUM TRUSS & STEEL SUPPORTS

District 3
Sign Structure Replacement



TYPICAL ELEVATION
(Looking at Face of Signs)**

Elev. A = Elevation at point of minimum clearance to sign, walkway support or truss.

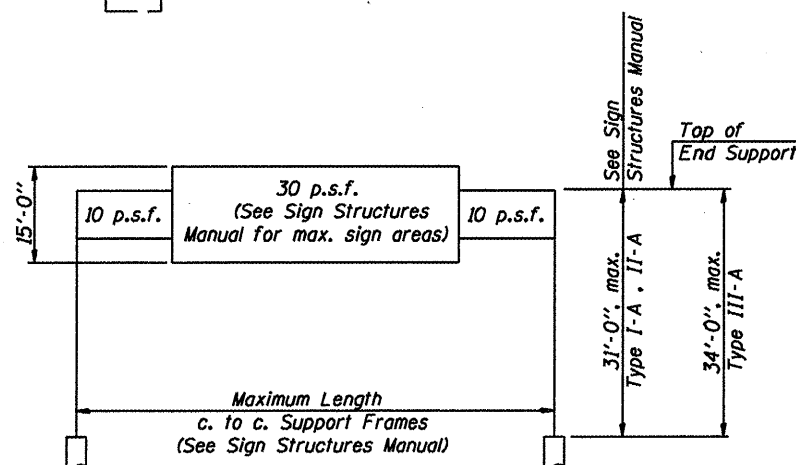
Structure Number	Station	Design Truss Type	c. to c. Supports	Elev. A	Dim. D	Height of Tallest Sign	Total Sign Area
3S006I080R060.7	1357 + 22	II-A	102'-0"	702.44	33'-6"	10'-6"	244.25
3S006I080R062.5 *	1453 + 00	II-A	87'-0"	684.30	31'-6"	12'-6"	278.50
3S050I080R078.1	737 + 10	II-A	90'-0"	100.00	32'-0"	13'-0"	496.50
3S050I080L079.4	809 + 11	II-A	80'-0"	100.00	32'-0"	14'-6"	396.25
3S050I080L080.0	839 + 11	II-A	81'-0"	100.00	32'-0"	14'-6"	433.75

**Looking upstation for structures with signs both sides.
* Existing Truss to be reused for Structure No. 3S006I080L062.5

TOTAL BILL OF MATERIAL

NUMBER	REVISION	DATE

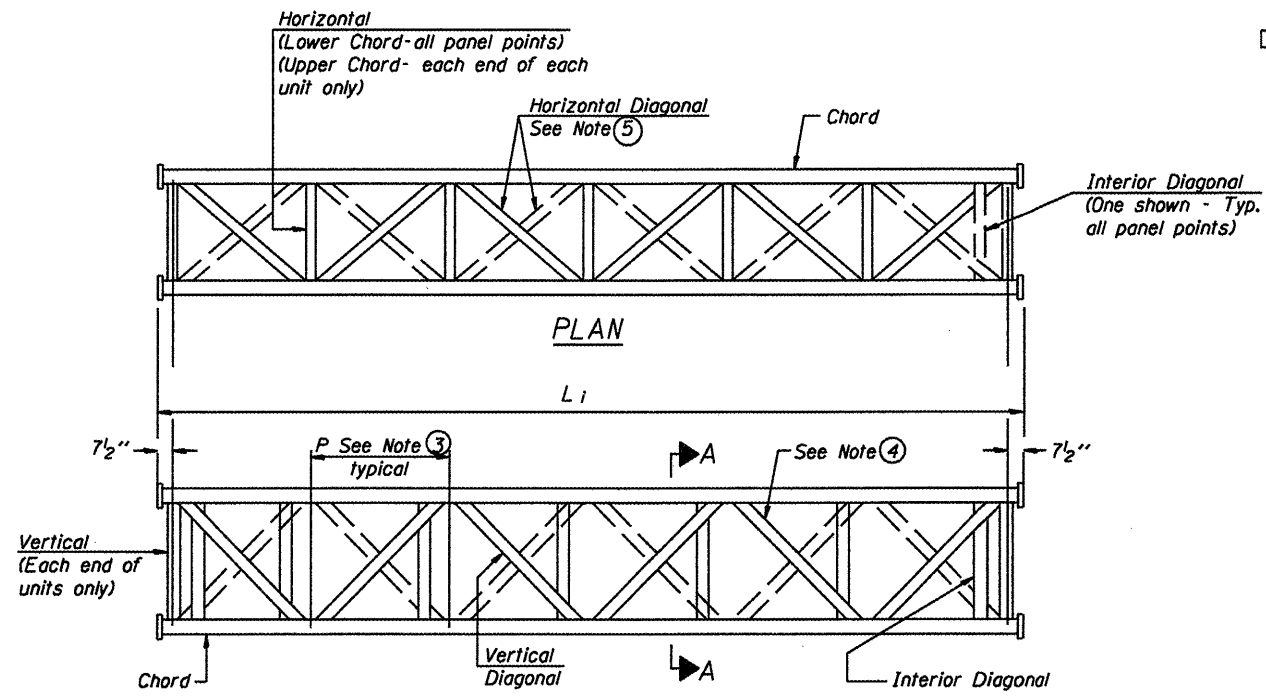
ITEM	UNIT	TOTAL
OVERHEAD SIGN STRUCTURE SPAN TYPE I-A	Foot	
OVERHEAD SIGN STRUCTURE SPAN TYPE II-A	Foot	
OVERHEAD SIGN STRUCTURE SPAN TYPE III-A	Foot	
OVERHEAD SIGN STRUCTURE WALKWAY TYPE A	Foot	
CONCRETE FOUNDATIONS	Cu. Yds.	
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	



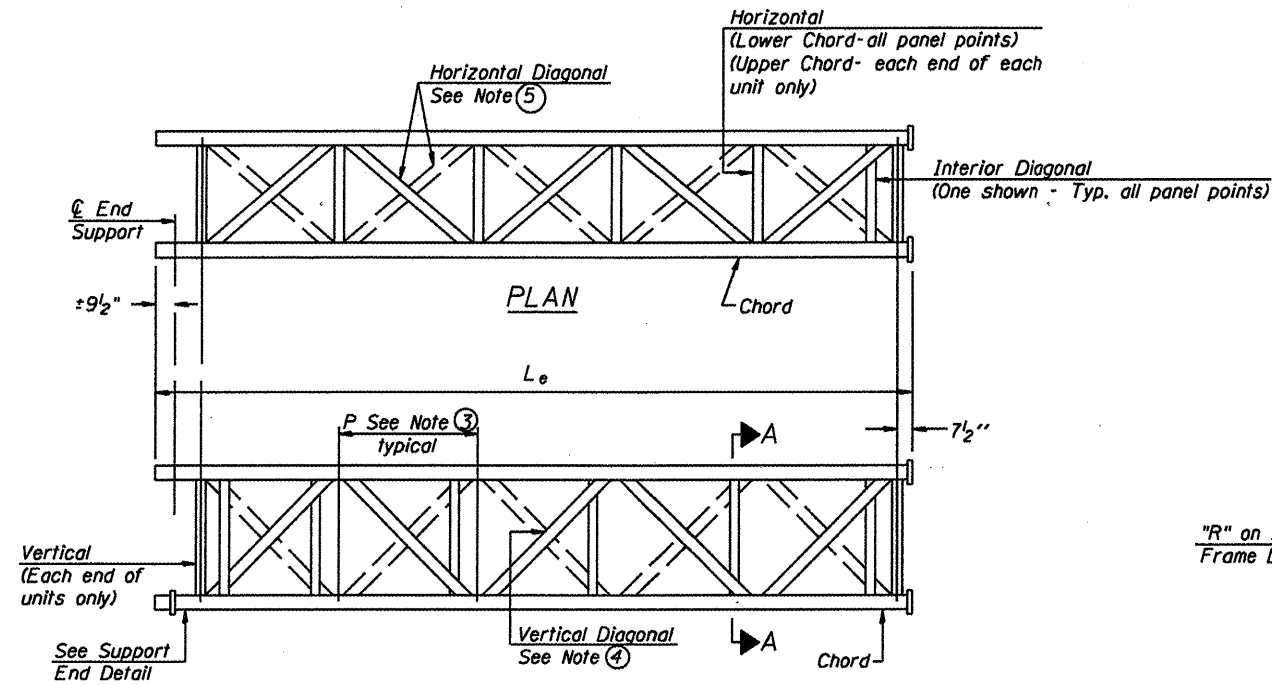
DESIGN WIND LOADING DIAGRAM

Parameters shown are basis for I.D.O.T. Standards and Sign Manual Tables. Installations not within dimensional limits shown require special analysis for all components.

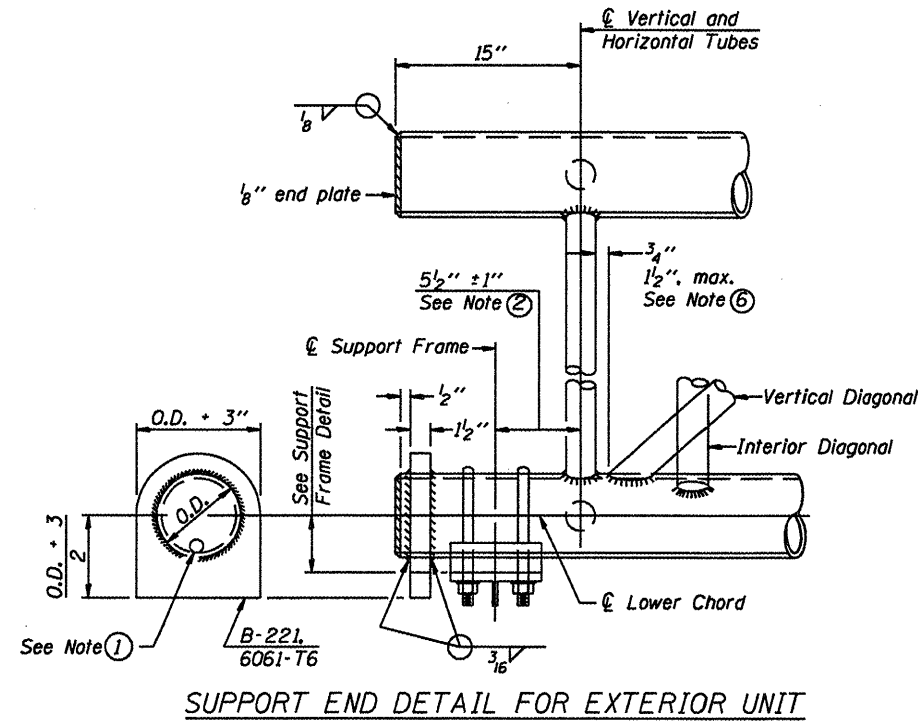
DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES



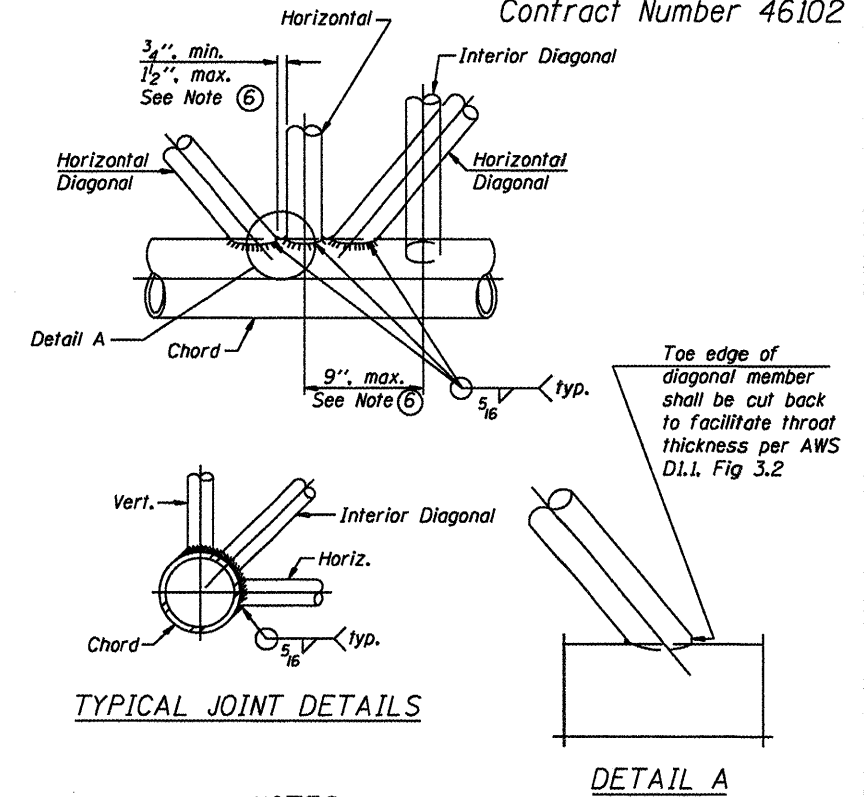
**ELEVATION
TYPICAL INTERIOR UNIT**
Even number of panels/interior unit required.



**ELEVATION
TYPICAL EXTERIOR UNIT**
Even or odd number of panels/exterior units allowed.

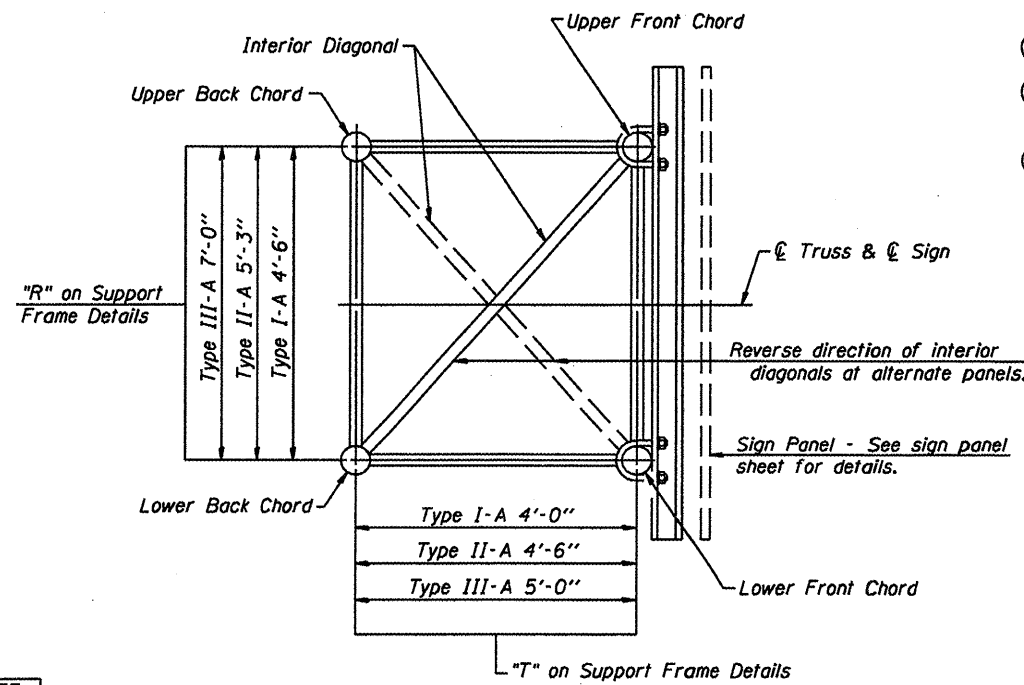


SUPPORT END DETAIL FOR EXTERIOR UNIT



TYPICAL JOINT DETAILS

- NOTES**
- Contractor may alternatively use standard aluminum drive-fit cap to close end. 1/2" diameter drain hole in end plate/drive-fit cap. (Typ. at ends of all chords)
 - 5 1/2" end dimension may vary by +/- 1" to provide uniform panel spacing (P).
 - Panel spacing (P) shall be uniform for entire truss and between 4'-0" and 5'-0" for Type I-A or 4'-0" and 5'-6" for Types II-A and III-A.
 - Vertical Diagonals in front and back face shall alternate.
 - Hidden lines show wind bracing alternates direction between planes of top and bottom chords.
 - All diagonals shall be detailed for minimum offset from the panel point based on the following: Offset shall be such as to provide a 3/4" minimum to 1 1/2" maximum clearance between any diagonal and any horizontal or vertical member, and to provide clearance for U-bolt connections of signs or walkway brackets.



SECTION A-A

OVERHEAD SIGN STRUCTURES
ALUMINUM TRUSS DETAILS
FOR TRUSS TYPES I-A, II-A and III-A

District 3
Sign Structure Replacement

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	

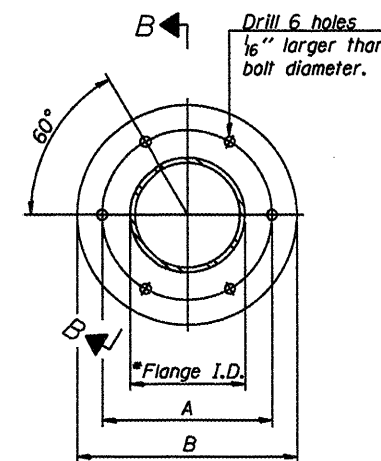
OS-A-2

5/16/08

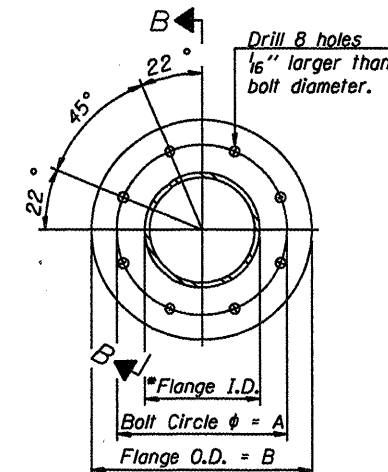
NUMBER	REVISION	DATE

TRUSS UNIT TABLE

Structure Number	Station	Design Truss Type	Exterior Units (2)			Interior Unit				Upper & Lower Chord		Verticals; Horizontals; Vertical, Horizontal, and Interior Diagonals		Camber at Midspan	Splicing Flange					
			No. Panels per Unit	Unit Lgth.(L _e)	Panel Lgth.(P)	No. Req'd.	No. Panels per Unit	Unit Lgth.(L _i)	Panel Lgth.(P)	O.D.	Wall	O.D.	Wall		Bolts		Weld Sizes		A	B
															No./Splice	Dia.	W	W _i		
3S006I080R060.7	1357 + 22	II-A	7	36'-5 1/4"	4'-11 1/4"	1	6	30'-10 1/2"	4'-11 1/4"	6 1/2"	5/16"	3"	5/16"	3"	6	1"	3/8"	1/4"	11"	14 1/2"
3S050I080R078.1	737 + 10	II-A	5	28'-11 1/2"	5' - 5"	1	6	33' - 9"	5' - 5"	6"	5/16"	3"	5/16"	2 1/2"	6	7/8"	3/8"	1/4"	10 1/4"	13 3/4"
3S050I080L079.4	809 + 11	II-A	5	29' - 2"	5'-5 1/2"	1	4	23' - 1"	5'-5 1/2"	6"	5/16"	3"	5/16"	2"	6	7/8"	3/8"	1/4"	10 1/4"	13 3/4"
3S050I080L080.0	839 + 11	II-A	5	26'-1 3/4"	4'-10 1/4"	1	6	30'-4 1/2"	4'-10 1/2"	6"	5/16"	3"	5/16"	2"	6	7/8"	3/8"	1/4"	10 1/4"	13 3/4"



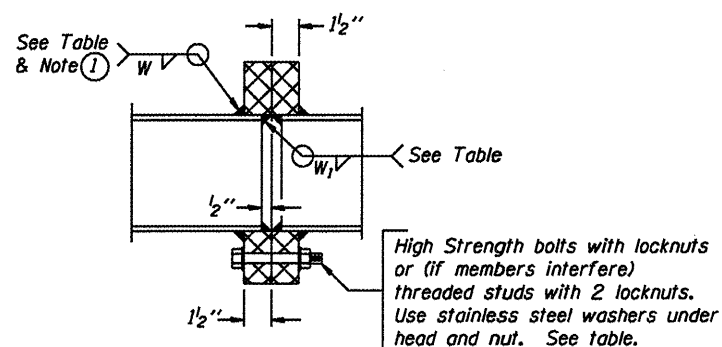
TRUSS TYPES I-A, II-A, & III-A



TRUSS TYPES II-A & III-A

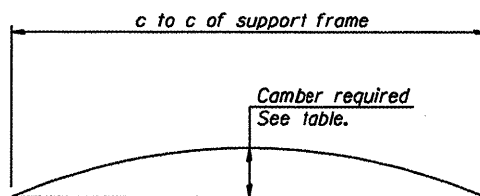
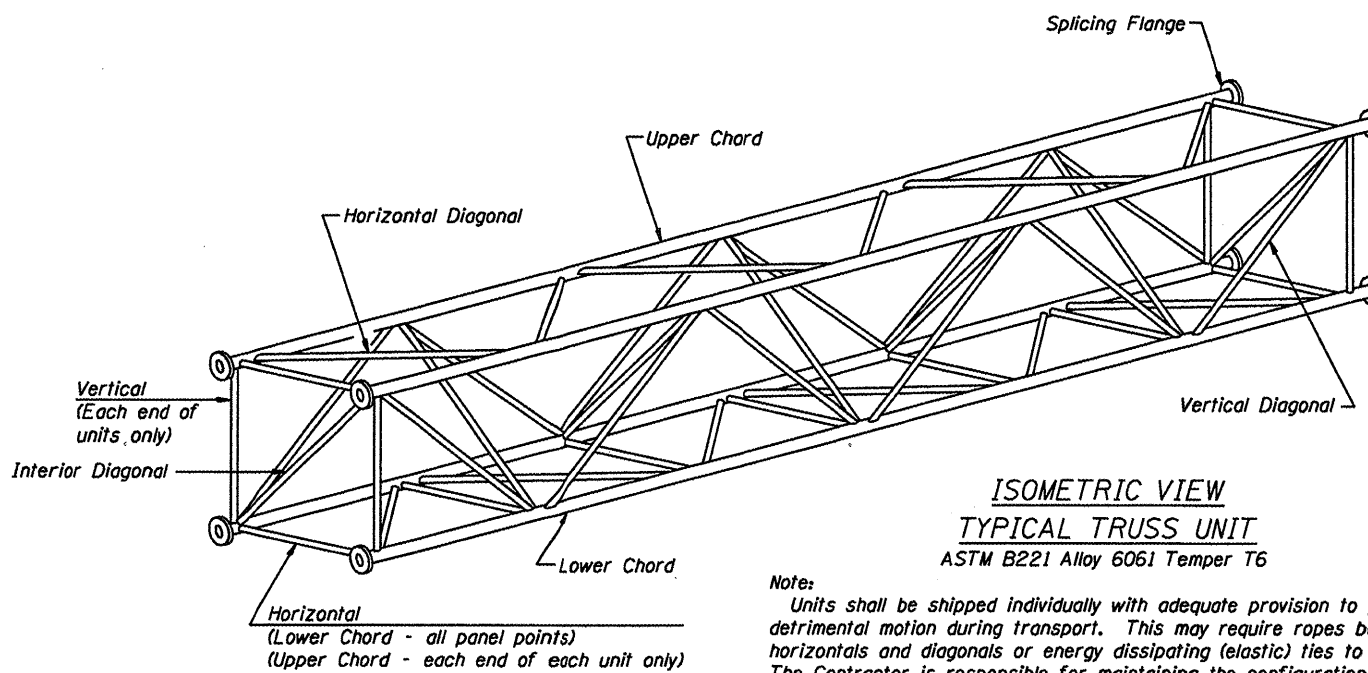
SPLICING FLANGES

ASTM B221, Alloy 6061-T6
or ASTM B209, Alloy 6061-T651
*To fit O.D. of Chord with maximum gap of 1/16\"/>



SECTION B-B

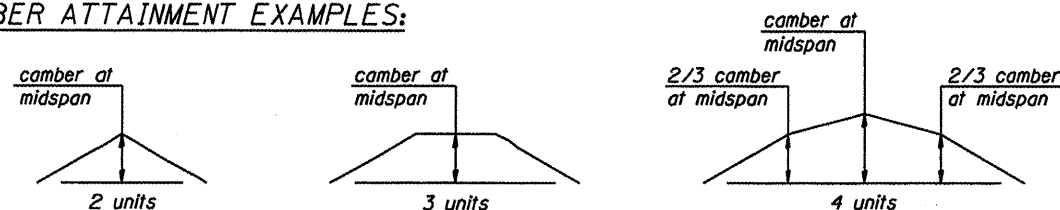
① Splicing Flanges shall be attached to each truss unit with the truss shop assembled to camber shown. Truss units shall be in proper alignment and flange surfaces shall be shop bolted into full contact before welding. Sufficient external welds or tacks shall be made to secure flanges until remaining welds are made after disassembly. Adjacent flanges shall be "match marked" to insure proper field assembly.



CAMBER DIAGRAM

Camber curve shown is theoretical. Actual camber attained by slope changes at splices between units.

CAMBER ATTAINMENT EXAMPLES:



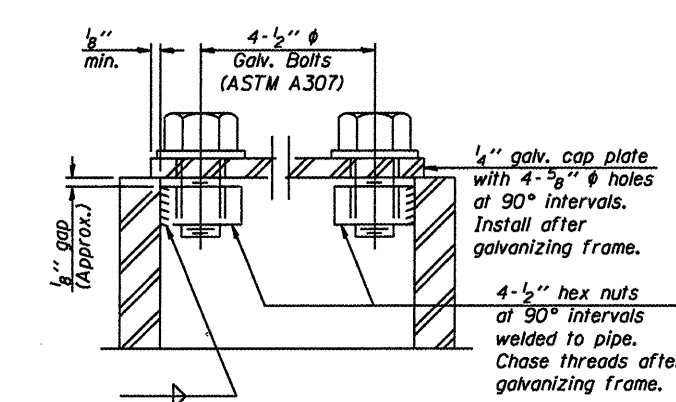
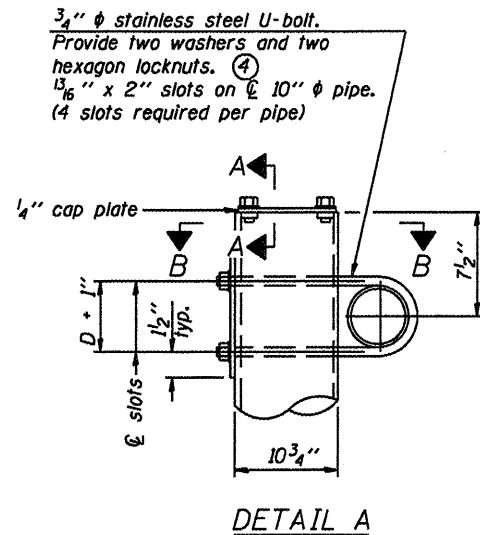
Camber shown is for fabrication only, measured with truss fully supported. (No-load condition)

NUMBER	REVISION	DATE

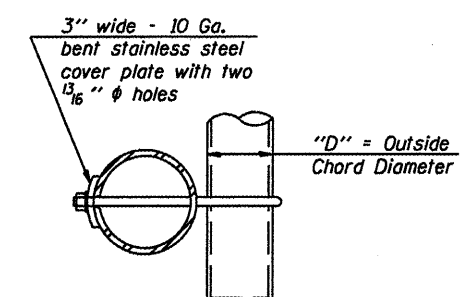
DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

OVERHEAD SIGN STRUCTURES
ALUMINUM TRUSS DETAILS
FOR TRUSS TYPES I-A, II-A and III-A

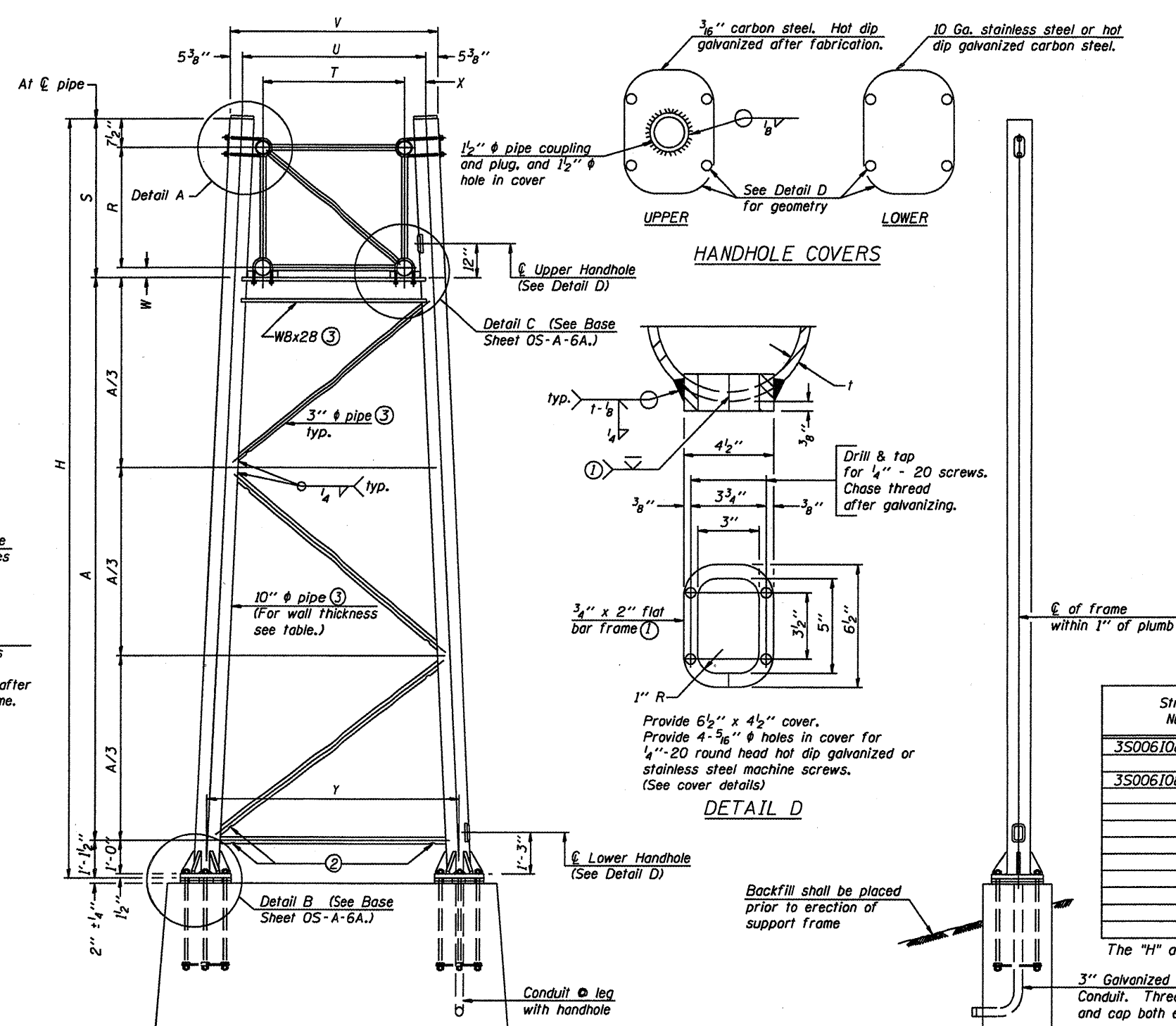
District 3
Sign Structure Replacement



SECTION A-A
As an alternate to bolts, may use galvanized drive-fit caps installed after galvanizing frame.



SECTION B-B



For Foundation Details, see base sheet OS-F3 (Spread Footing) or OS4-F3 (Drilled Shaft).

SIDE ELEVATION

END ELEVATION

10" ϕ PIPE TRUSS SUPPORT FRAME

Support Design Loads: See Base Sheet OS-A-1 for design and loading criteria.
Load combinations checked include deadload plus:
a) 100% wind normal to sign, 20% parallel to sign
b) 60% wind normal to sign, 30% parallel to sign

- ① In lieu of fabricated handhole frame as shown, may cut from 2" plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500 μ in or less.
- ② Galvanizing vent holes of adequate size shall be provided on underside at each end of bracing pipes. Alternately, holes may be provided in wall of pipe column. All vent holes shall be drilled and de-burred, typ.
- ③ Steel pipe, plate, carbon steel handhole covers and rolled sections shall be hot dip galvanized after fabrication. Painting is not permitted. See Base Sheet OS-A-1.
- ④ See General Notes for fasteners.
- ⑤ Dimensions shown are based on selection criteria in the Sign Structures Manual. Nonstandard applications must have dimensions verified or amended as appropriate.
- ⑥ "H" based on 15'-0" or actual sign height, whichever is greater.

Structure Number	Station	Support		Truss Type	Pipe Wall Thickness	H (6)	A
		Left	Right				
3S0061080R060.7	1357 + 22	X	X	II-A	0.365(Std)	26'-3 3/4"	18'-8"
3S0061080R062.5	1453 + 00	X	X	II-A	0.365(Std)	26'-3 3/4"	18'-8"

The "H" and "A" dimensions shown were taken from the existing end support details.

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

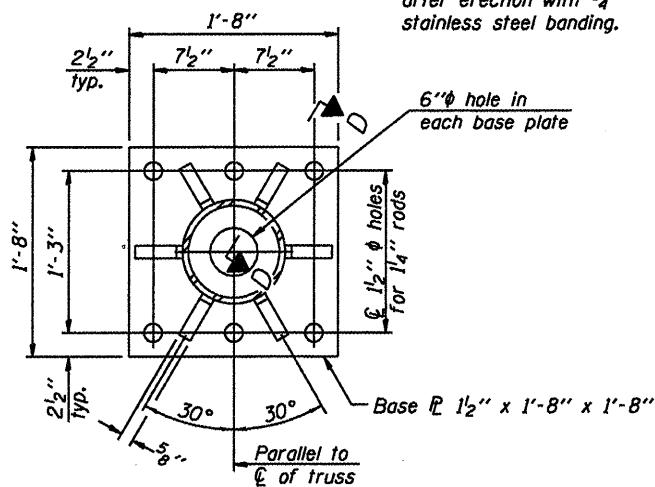
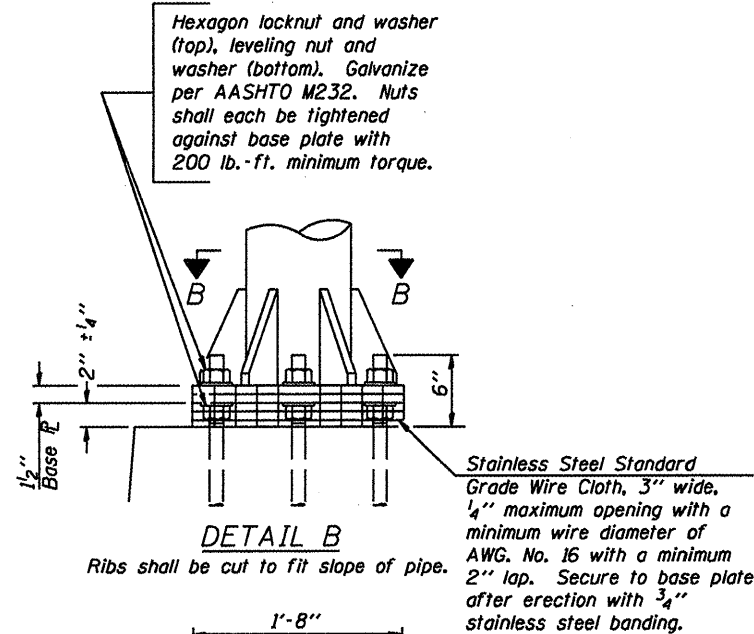
OS-A-6 5/16/08

NUMBER	REVISION	DATE

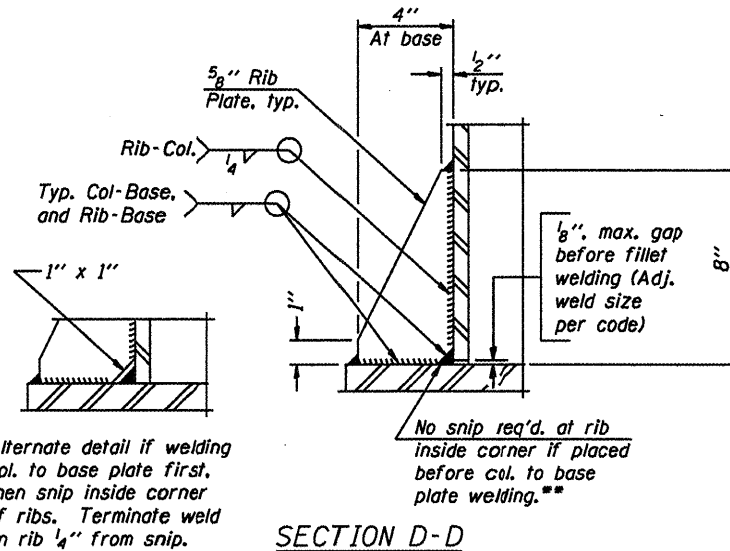
Truss Type	Dimensions							
	R	S	T	U	V	W	X	Y
I-A	4'-6"	5'-5 1/2"	4'-0"	5'-6"	6'-4 3/4"	4"	9"	8'-3"
II-A (5)	5'-3"	6'-3 1/4"	4'-6"	6'-1"	6'-11 3/4"	4 3/4"	9 1/2"	8'-3"

OVERHEAD SIGN STRUCTURES
SUPPORT FRAME for ALUMINUM TRUSS

District 3
Sign Structure Replacement

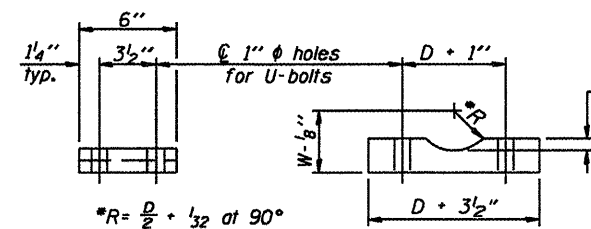


SECTION B-B



SECTION D-D

Alternate detail if welding col. to base plate first, then snip inside corner of ribs. Terminate weld on rib 1/4" from snip.

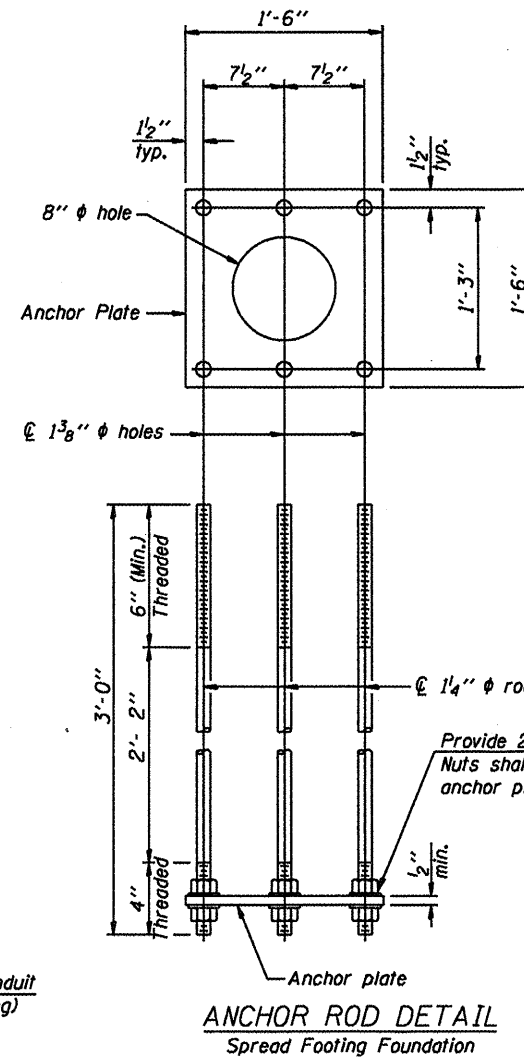


D = Outside Diameter of Chord.
For W, see Base Sheet OS-A-6.

SADDLE SHIM DETAIL

ASTM B26 Alloy 356-F
or
ASTM B209 Alloy 6061-T651
(4 required per sign truss)

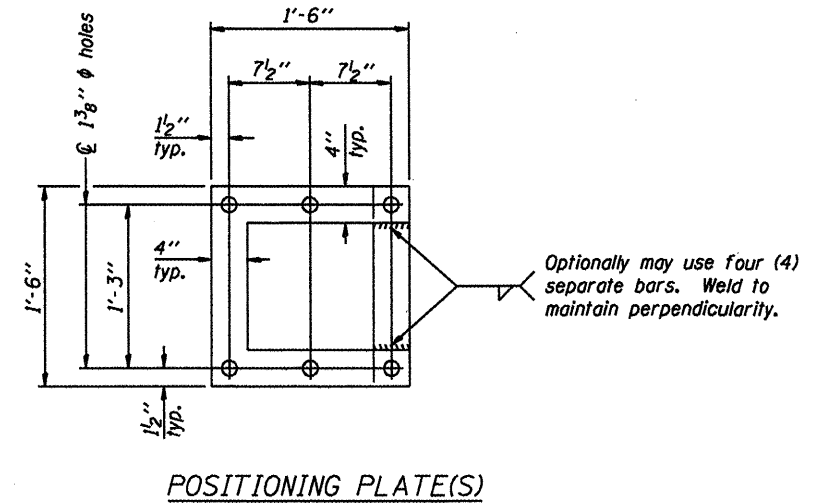
Truss Chord Nominal Dia.	a
5"	3/4"
5 1/2"	13/16"
6"	7/8"
6 1/2"	15/16"
7"	1"



All Thread = NC (National Coarse)

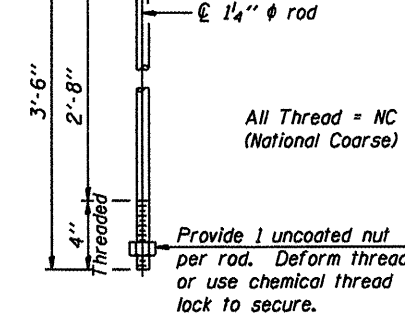
Anchor rods shall conform to AASHTO M314 Grade 36 or 50 and meet Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. Galvanize upper 12" per AASHTO M232. No welding shall be permitted on rods.

10" PIPE SUPPORT FRAME DETAILS



At each location, provide 1/4" thick positioning plate(s) and six (6) additional nuts to be used with leveling nuts to maintain anchor bolts position during concrete placement.

1/4" plate and extra nuts become Contractor's property. Cost included in Drilled Shaft Concrete Foundations.

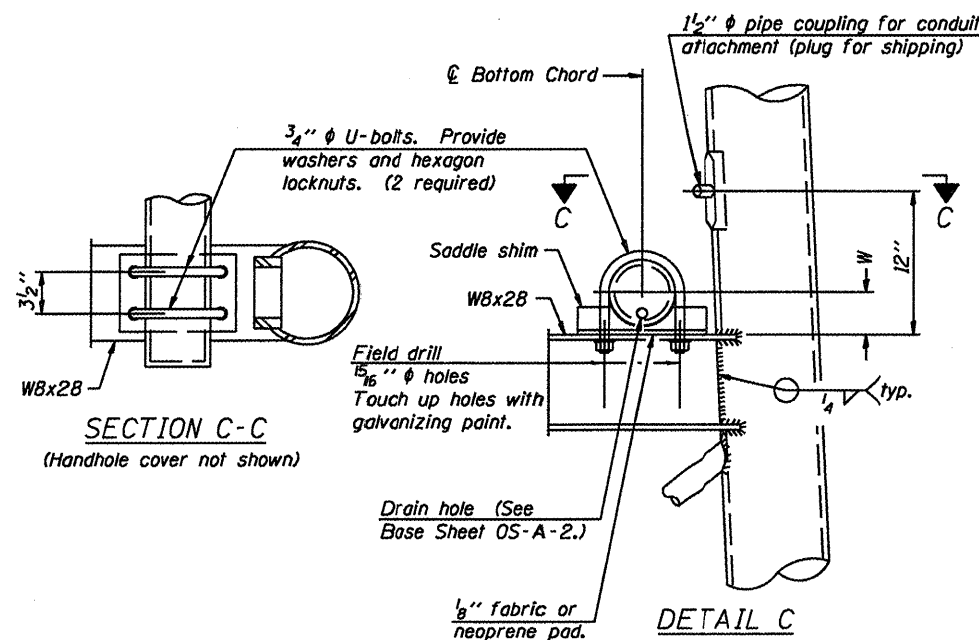


All Thread = NC (National Coarse)

Provide 1 uncoated nut per rod. Deform thread or use chemical thread lock to secure.

ANCHOR ROD DETAIL
Drilled Shaft Foundation

NUMBER	REVISION	DATE



Drain hole (See Base Sheet OS-A-2.)

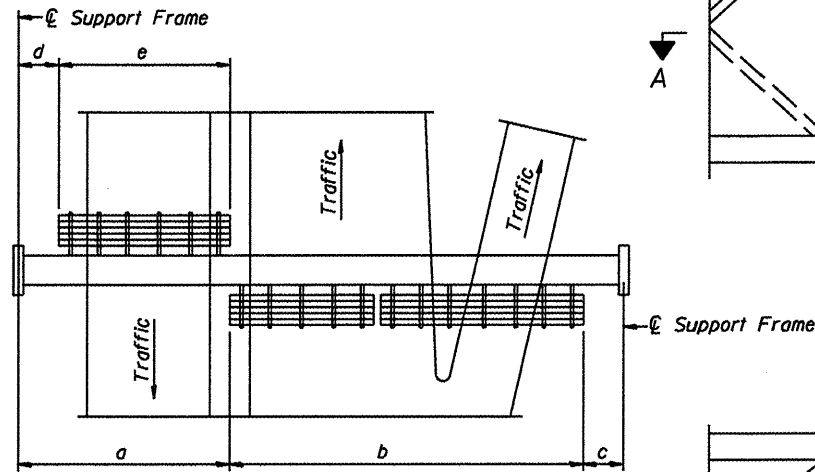
DETAIL C

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

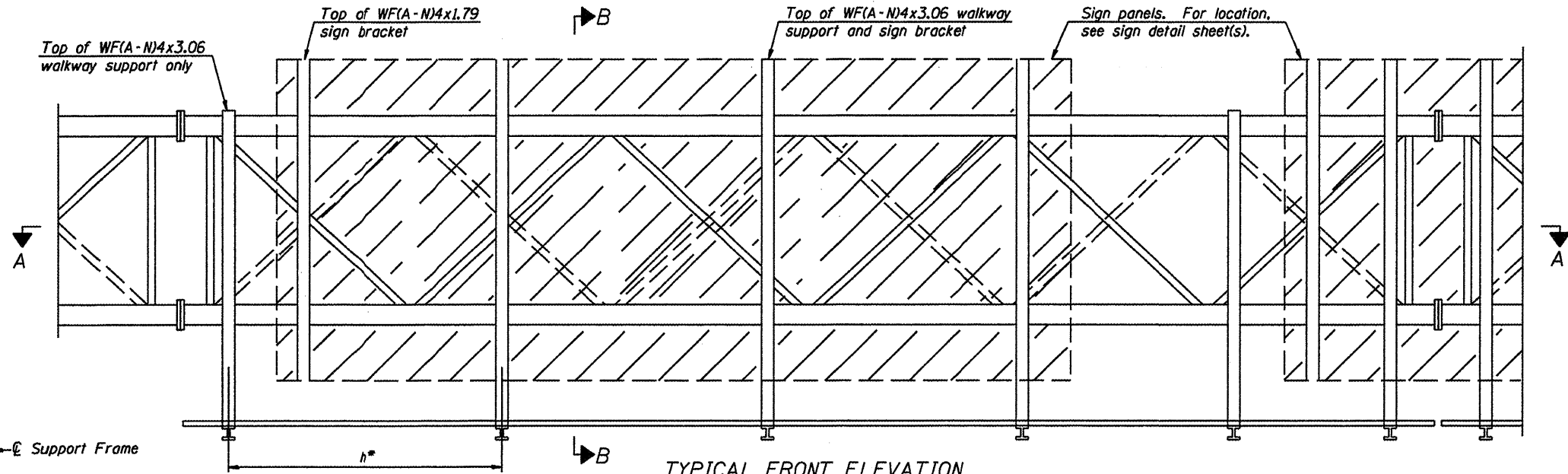
OVERHEAD SIGN STRUCTURES
SUPPORT FRAME DETAILS ALUMINUM TRUSS

District 3
Sign Structure Replacement

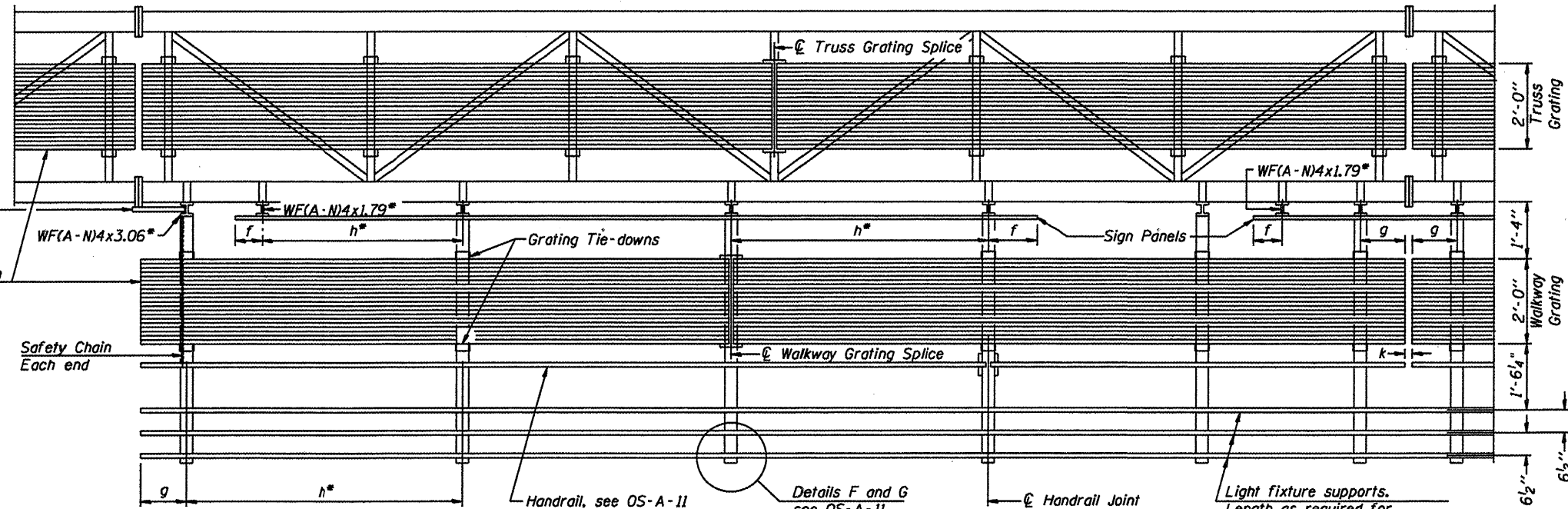
NUMBER	REVISION	DATE



PLAN
WALKWAY AND HANDRAIL SKETCH
(Road plan beneath truss varies)



TYPICAL FRONT ELEVATION
With lights and handrail omitted for clarity.
For Section B-B, see Base Sheet OS-A-10.



SECTION A-A

Handrail and walkway shall span a minimum of three brackets between splices and/or gap joints. Place all sign and walkway brackets as close to panel points as practical. Handrail joints, grating, and light support splices placed as needed.

Truss grating to facilitate inspection shall run full length (center to center of support frames) ±12" on overhead trusses. Cost of truss grating is included in "Overhead Sign Structure".

BRACKET TABLE

Sign Width		Number Brackets Required
Greater Than	Less Than or Equal To	
	8'-0"	2
8'-0"	14'-0"	3
14'-0"	20'-0"	4
20'-0"	26'-0"	5
26'-0"	32'-0"	6

- Notes:
• Space walkway brackets WF(A-N)4x3.06 and sign brackets WF(A-N)4x1.79 for efficiency and within limits shown:

- f = 12" maximum, 4" minimum (End of sign to center of nearest bracket)
g = 12" maximum, 4" minimum (End of walkway grating to center of nearest support bracket)
h = 6'-0" maximum (center to center of sign and/or walkway support brackets, WF(A-N)4x1.79 or WF(A-N)4x3.06)
k = 2" maximum gap between adjacent walkway grating sections and handrail ends

- If walkway bracket at safety chain location is behind sign, add angle to bracket, see Alternate Safety Chain Attachment on Base Sheet OS-A-11.

For Details T and W, Section B-B and Grating Splice Details see Base Sheet OS-A-10.
For Handrail Details see Base Sheet OS-A-11.

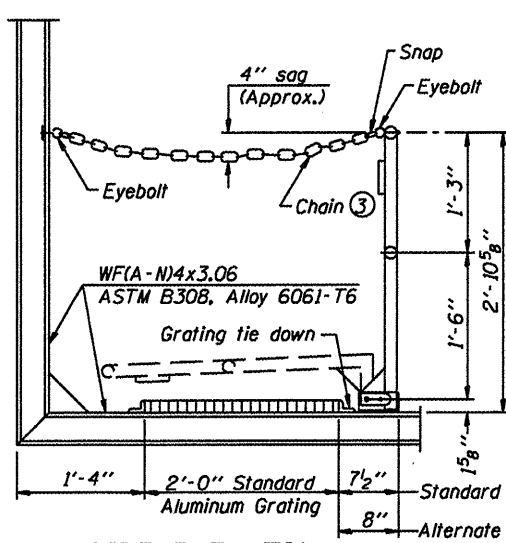
Structure Number	Station	a	b	c	d	e	Walkway Grating and Handrail Lengths
3S0061080R060.7	1357 + 22	N/A	N/A	N/A	N/A	N/A	104' - 0" *
3S0061080R062.5	1453 + 00	N/A	N/A	N/A	N/A	N/A	89' - 0"
3S0501080R078.1	737 + 10	N/A	N/A	N/A	N/A	N/A	91' - 0"
3S0501080L079.4	809 + 11	N/A	N/A	N/A	N/A	N/A	82' - 0"
3S0501080L080.0	839 + 11	N/A	N/A	N/A	N/A	N/A	83' - 0"

* Length shown is for internal truss grating to be installed.

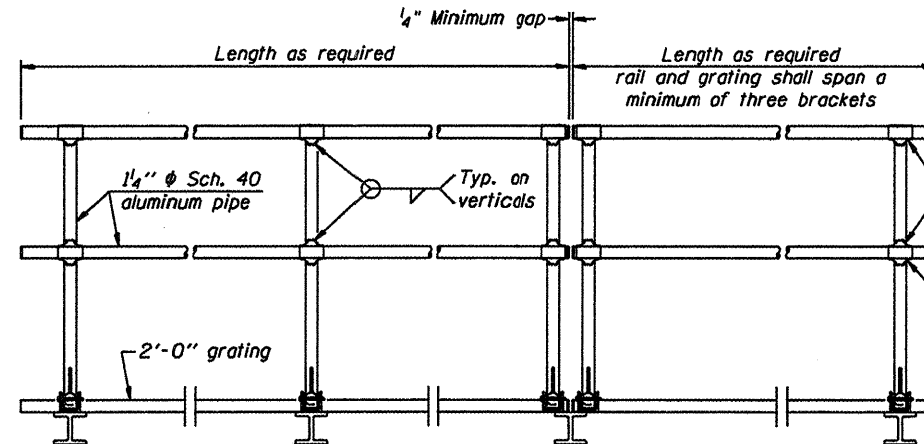
OVERHEAD SIGN STRUCTURES
ALUMINUM WALKWAY DETAILS

District 3
Sign Structure Replacement

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES



SIDE ELEVATION
(Showing safety chain w/o sign)

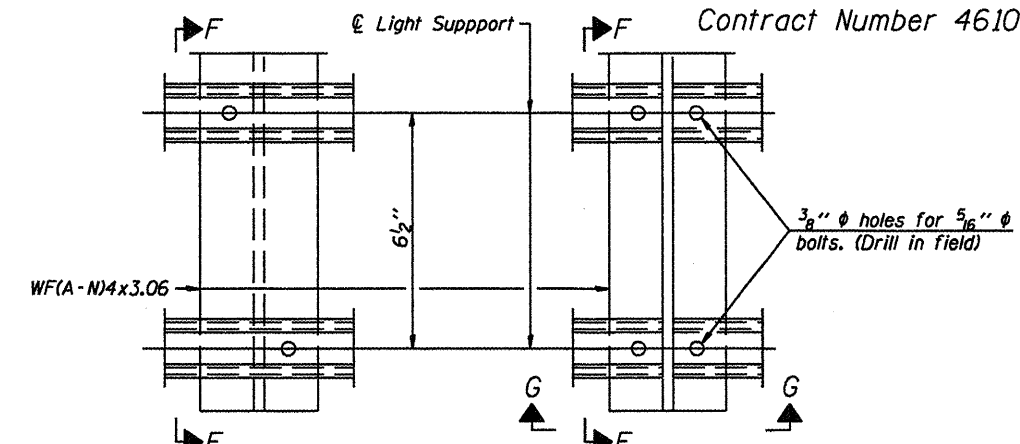


FRONT ELEVATION

HANDRAIL DETAILS

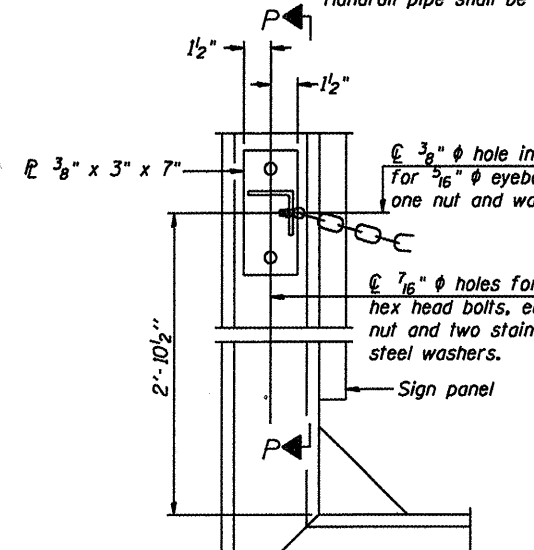
Handrail pipe shall be ASTM B241 or B429, Alloy 6063-T6 or Alloy 6061-T6.

- ① Install standard force-fit end caps or weld 1/2" end plates with 1/2" c.f.w. and grind smooth. (All rail ends)
- ② Horizontal handrail member shall be continuous thru fitting. Provide 1/16" hole in fitting for 3/8" bolt. Field drill 1/16" hole in horizontal rail member. Provide locknut and two stainless steel washers for bolt. (Use 5/16" eyebolts in 1/16" holes on top rail at ends only.)

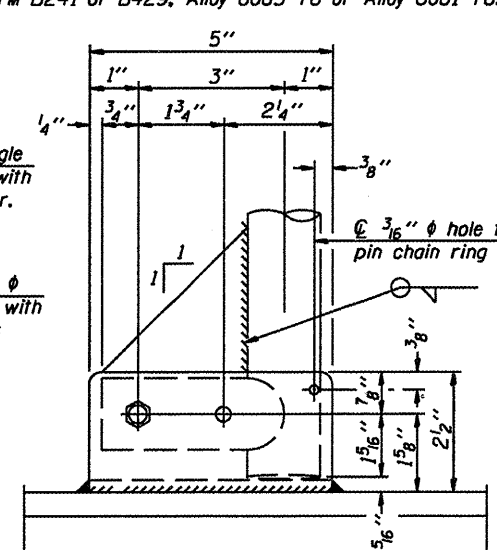


DETAIL F

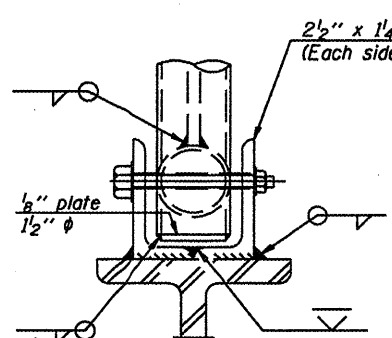
DETAIL G



ALTERNATE SAFETY CHAIN ATTACHMENT
(With Sign Present)
Items not shown same as "Side Elevation" of "Handrail Details"

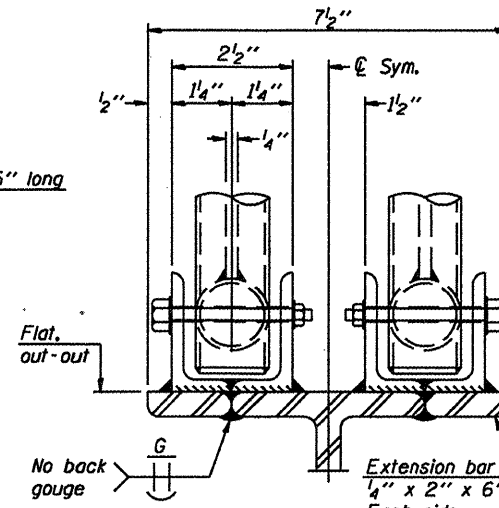


SIDE ELEVATION

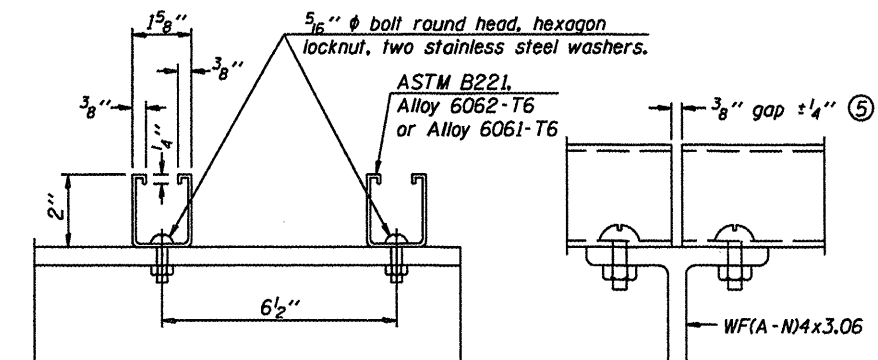


FRONT ELEVATION

See "Elevation" at right for dimensions.



ELEVATION AT HANDRAIL JOINT

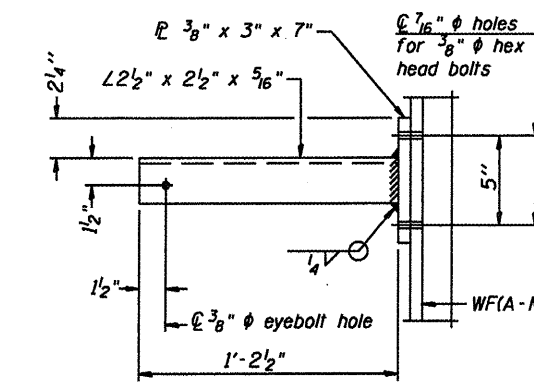


SECTION F-F

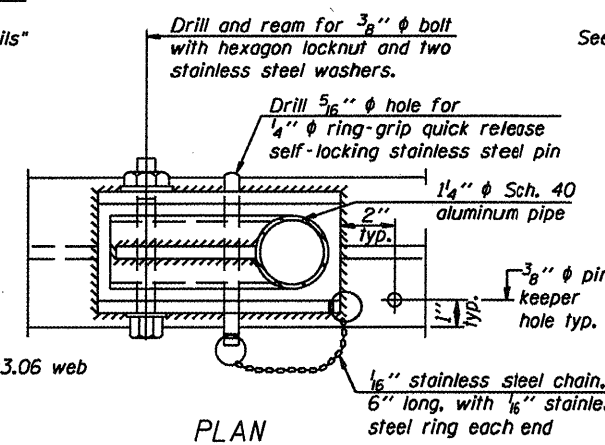
SECTION G-G

LIGHTING FIXTURE MOUNTS (IF REQUIRED)

- ⑤ Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.

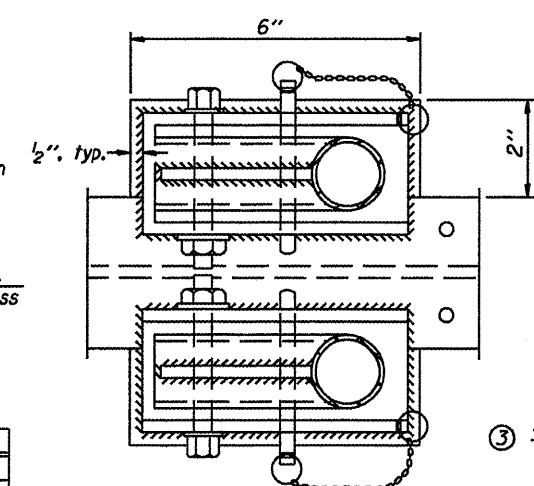


SECTION P-P

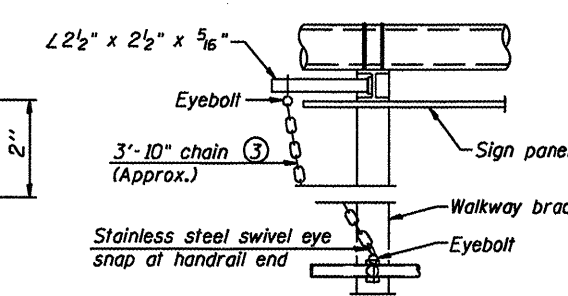


PLAN

DETAIL E HANDRAIL HINGE

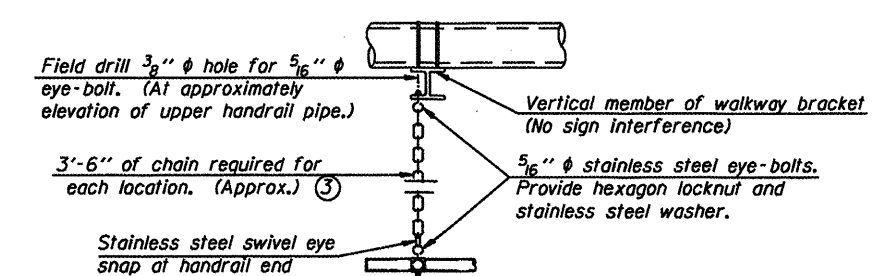


PLAN AT HANDRAIL JOINT
Details not shown same as "PLAN"



ALTERNATE SAFETY CHAIN ATTACHMENT
Details not shown similar to "Safety Chain" Details
(Walkway omitted for clarity)

- ③ 3/16" Type 304L stainless steel chain, approximately 12 links per foot.
- ④ Extrusions may be used in lieu of the details shown, with approval of the Engineer.



SAFETY CHAIN

One required for each end of each walkway.

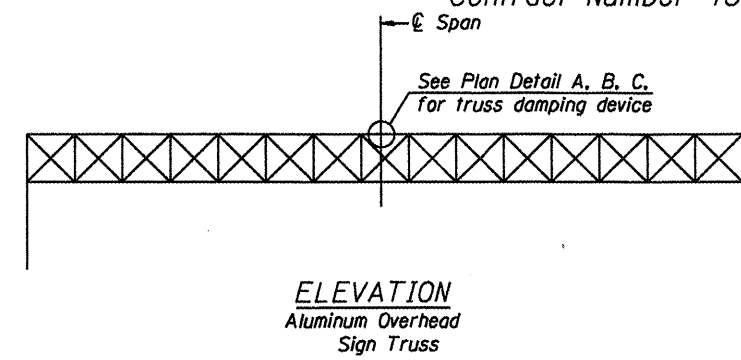
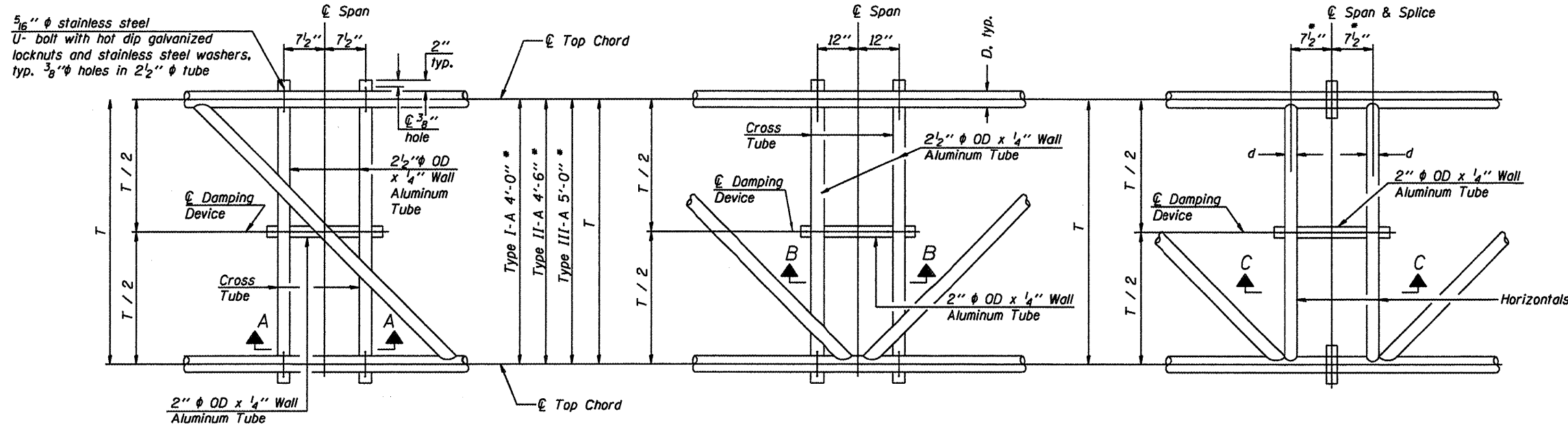
**OVERHEAD SIGN STRUCTURES
ALUMINUM HANDRAIL DETAILS**

District 3
Sign Structure Replacement

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

Center of horizontal to center of splice dimension may vary. Verify before drilling holes in mounting tube.



ELEVATION
Aluminum Overhead
Sign Truss

PLAN DETAIL "A"
Span between Panel Points

PLAN DETAIL "B"
Span at Panel Point

PLAN DETAIL "C"
Span at Chord Splice

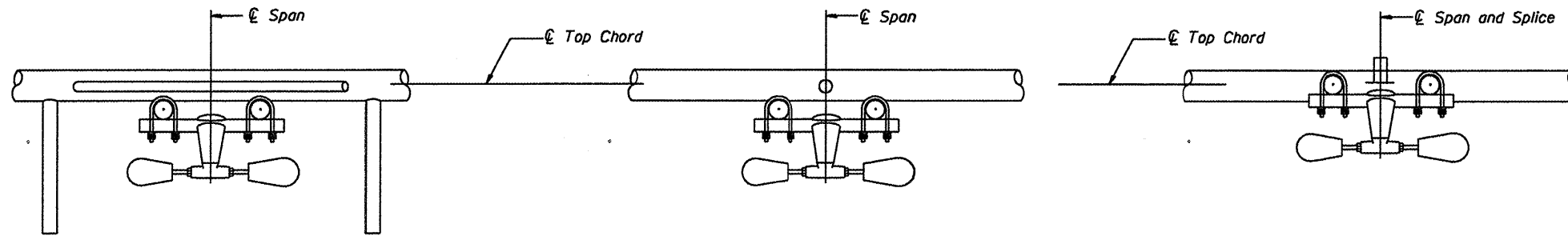
NOTES

Damper: One damper per truss.
(31 lbs. Stockbridge-Type Aluminum)
Cost included in Overhead Sign Structure...

Materials: Aluminum tubes shall be ASTM B221
alloy 6061 temper T6. Cost included in
Overhead Sign Structure...

This detail applies to the
following structures:

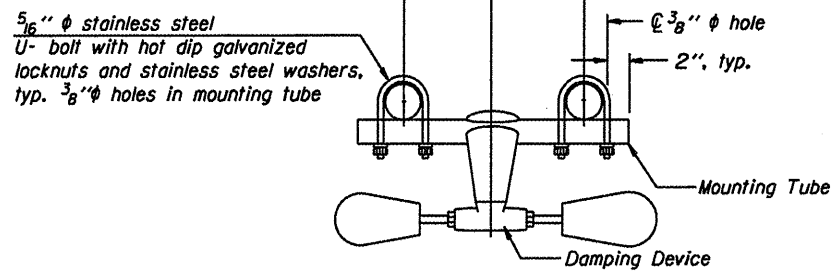
- Structure No. 3S0061080R060.7
- Structure No. 3S0501080R078.1
- Structure No. 3S0501080L079.4
- Structure No. 3S0501080L080.0



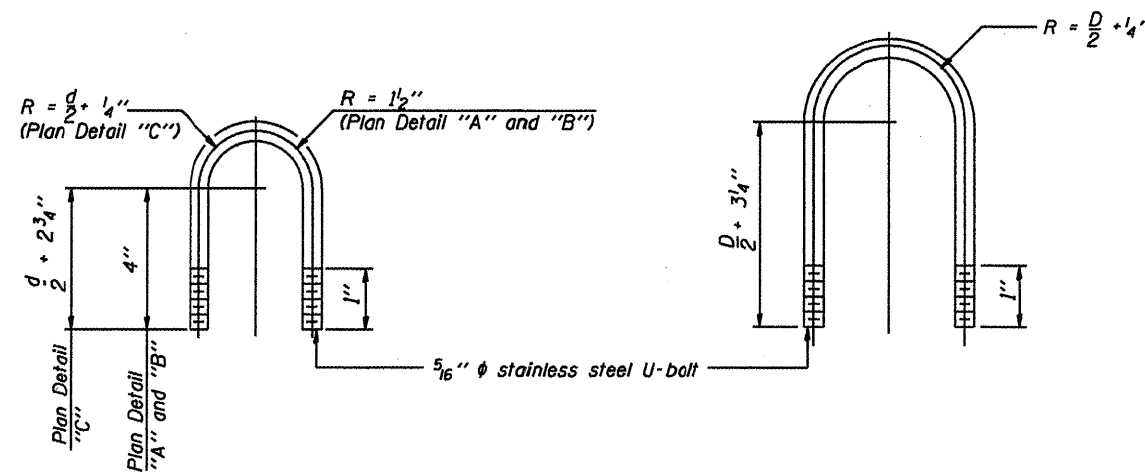
SECTION A-A

SECTION B-B

SECTION C-C



TRUSS DAMPING
DEVICE CONNECTION DETAIL
(Typical)



DAMPING DEVICE MOUNTING
TUBE U-BOLT DETAIL
(Typical)

TOP CHORD TO CROSS TUBE
U-BOLT DETAIL
(Typical - Detail "A" and "B")

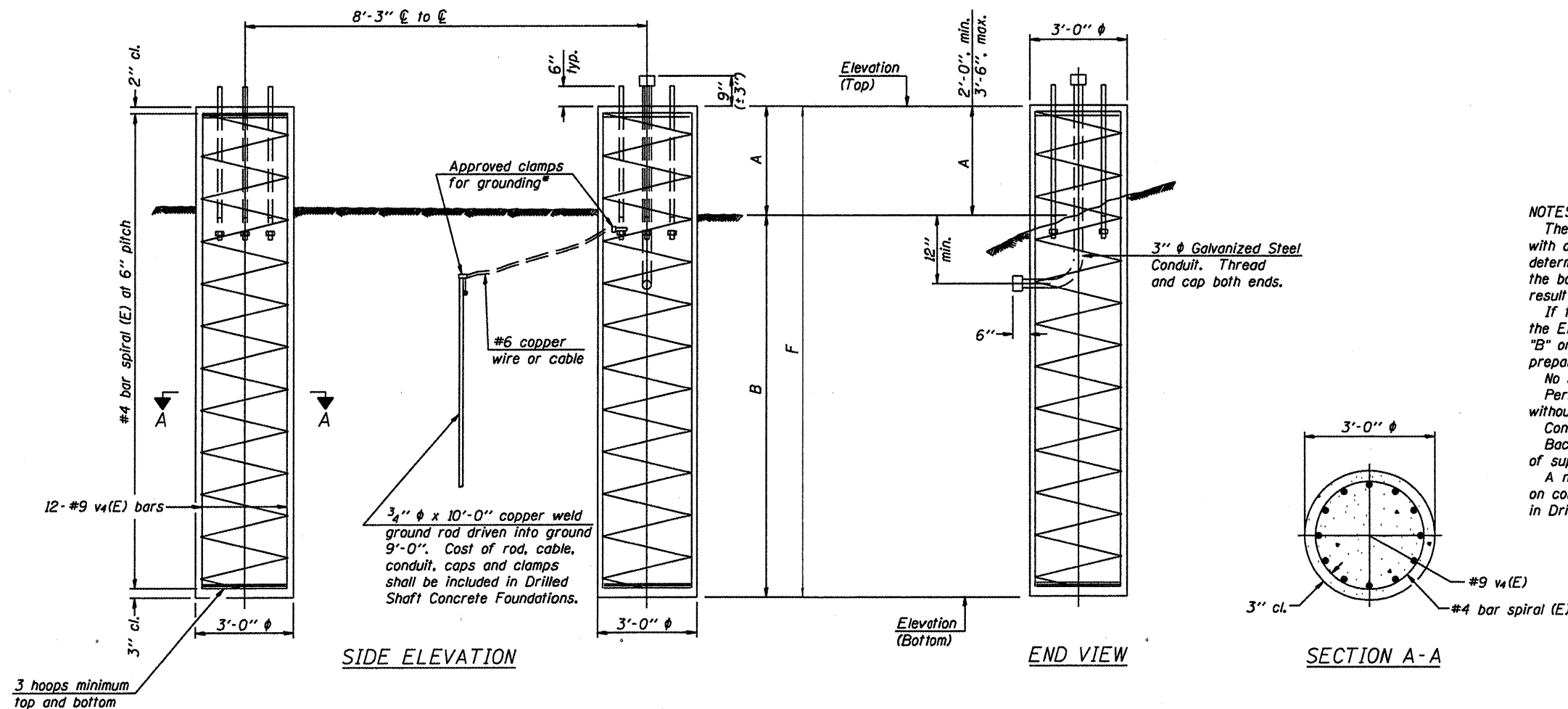
DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

For anchor rod size and placement, see Support Frame Detail Sheet.

Anchor rod shall be ground or filed to bright metal at clamp and cable connection location.

BAR LIST - EACH FOUNDATION

Bar	Number	Size	Length	Shape
v4(E)	24	#9	F less 5"	—
#4 bar spiral (E) - see Side Elevation				



NOTES:

The foundation dimensions shown are based on the presence of mostly cohesive soils with an average Unconfined Compressive Strength (Q_u) of at least 1.25 tsf, which must be determined by previous soil investigations at the jobsite. When other conditions are indicated, the boring data will be included in the plans and the foundation dimensions shown will be the result of site specific designs.

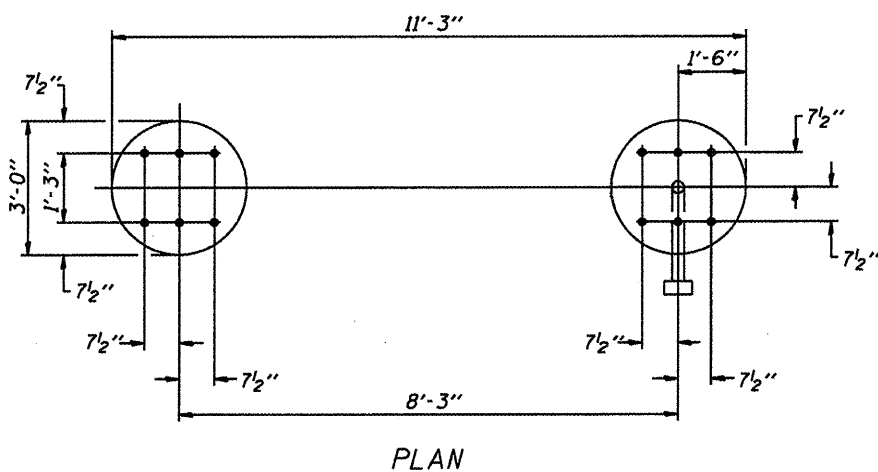
If the conditions encountered are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified. If dimensions "B" or "F" are revised by more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District Bureau of Operations for future reference.

No sonotubes or decomposable forms shall be used below the lower conduit entrance. Permanent metal forms or other shielding may not be left in place below that elevation without the Engineer's written permission.

Concrete shall be placed monolithically, without construction joints.

Backfill shall be placed per Article 502 of Standard Specification and prior to erection of support column.

A normal surface finish followed by a Bridge Seat Sealer application will be required on concrete surfaces above the lowest elevation 6" below finished ground line. Cost included in Drilled Shaft Concrete Foundation.



Structure Number	Station	Left Foundation			Right Foundation			Class SI Concrete (Cu. Yds.)				
		Elevation Top	Elevation Bottom	A	B	F	Elevation Top		Elevation Bottom	A	B	F
3S0061080R060.7	1357 + 22						702.44	678.94	3' - 0"	20' - 6"	23' - 6"	12.30
3S0061080R062.5	1453 + 00						684.30	663.80	3' - 0"	17' - 6"	20' - 6"	10.70

For left foundation details see Sheet OS4 Median Support Foundation Details.

OVERHEAD SIGN STRUCTURES
DRILLED SHAFT DETAILS

District 3
Sign Structure Replacement

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES

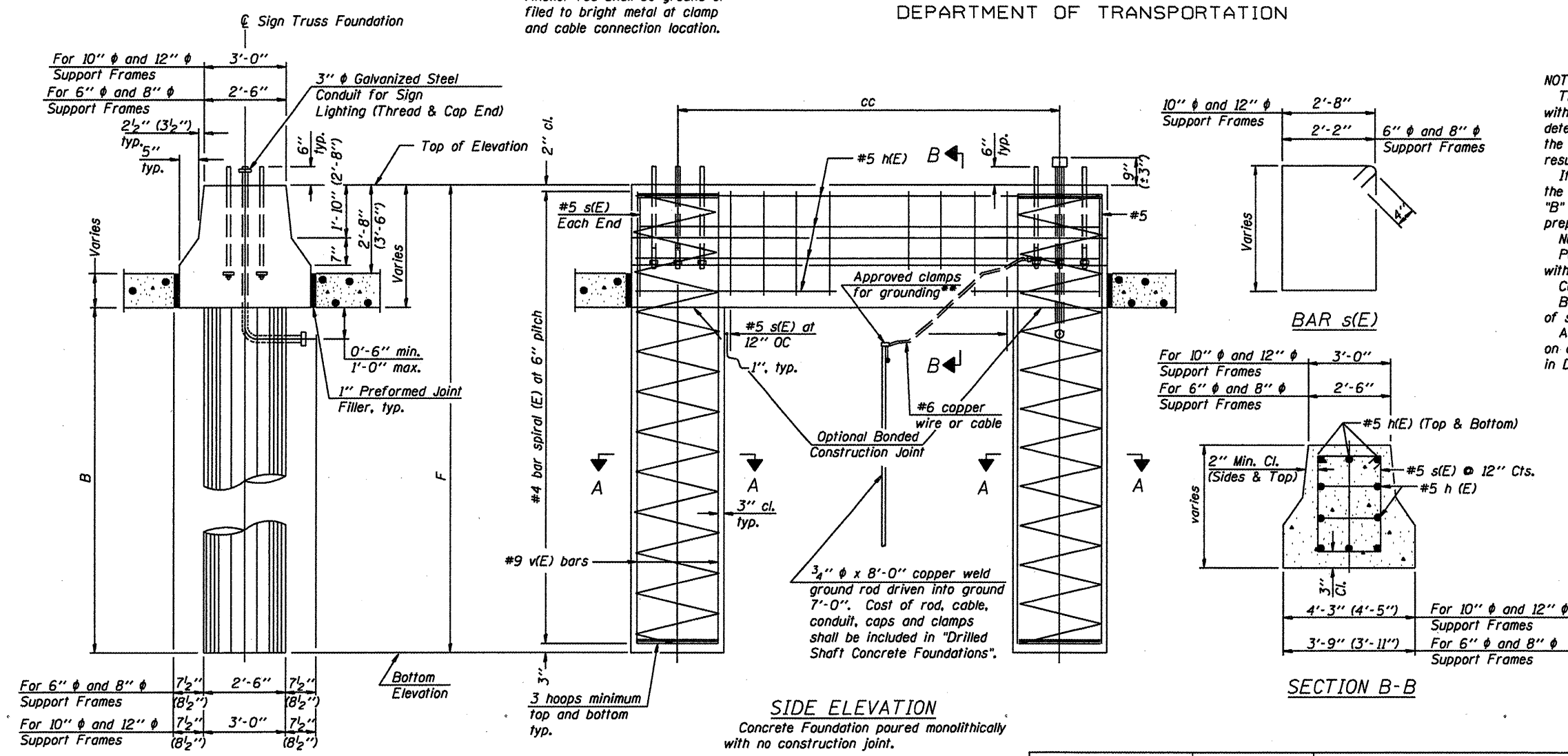
5/16/08

NUMBER	REVISION	DATE

DETAILS FOR 10" ϕ SUPPORT FRAME
TYPE I-A or II-A TRUSS

OS4-F3

* Anchor rod shall be ground or filed to bright metal at clamp and cable connection location.



NOTES:

The foundation dimensions shown are based on the presence of mostly cohesive soils with an average Unconfined Compressive Strength (Qu) of at least 1.25 tsf, which must be determined by previous soil investigations at the jobsite. When other conditions are indicated, the boring data will be included in the plans and the foundation dimensions shown will be the result of site specific designs.

If the conditions encountered are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified. If dimensions "B" or "F" are revised by more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District Bureau of Operations for future reference.

No sonotubes or decomposable forms shall be used below the lower conduit entrance. Permanent metal forms or other shielding may not be left in place below that elevation without the Engineer's written permission.

Concrete shall be placed monolithically, without construction joints.

Backfill shall be placed per Article 502 of Standard Specification and prior to erection of support column.

A normal surface finish followed by a Bridge Seat Sealer application will be required on concrete surfaces above the lowest elevation 6" below finished ground line. Cost included in Drilled Shaft Concrete Foundation.

BAR LIST - EACH FOUNDATION

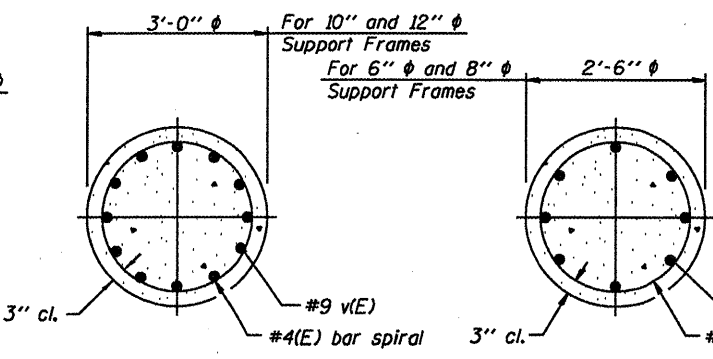
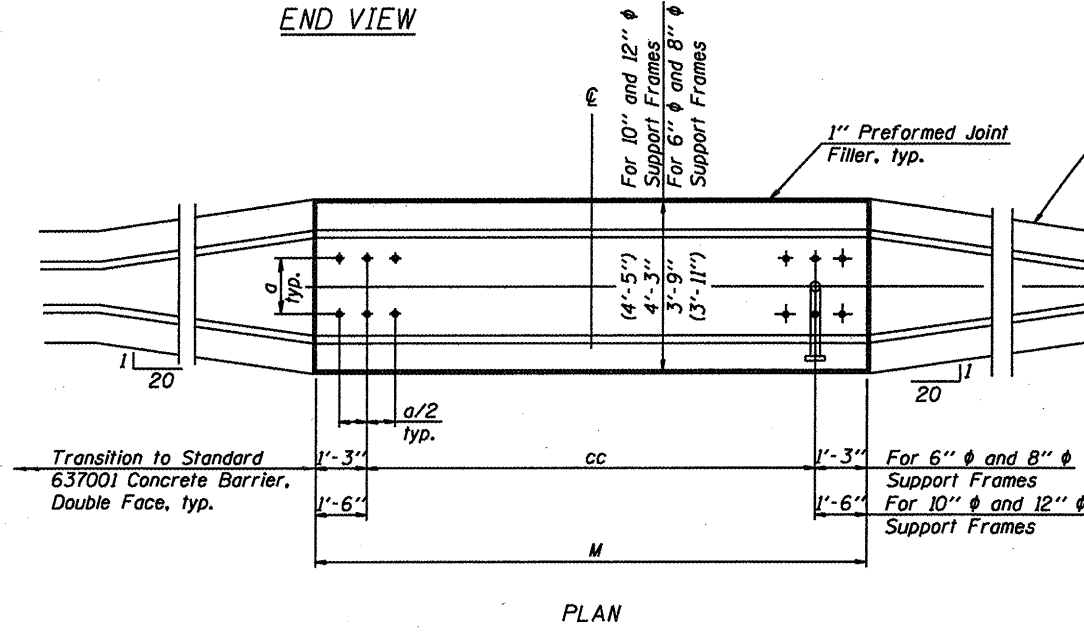
Bar	Number	Size	Length	Shape
n(E)	10	#5	M less 4"	—
s(E)	Varies	#5	Varies	□
v(E)	16	#9	F less 0'-5"	—
v(E)	24	#9	F less 0'-5"	—

#4(E) bar spiral - see Side Elevation

All dimensions in parenthesis are for 42" high barrier.

Structure Number	Station	Left Foundation				Right Foundation				Class SI Concrete (Cu. Yds.)
		Elevation Top	Elevation Bottom	B	F	Elevation Top	Elevation Bottom	B	F	
3S006I080R060.7	1357 + 22	702.44	678.94	20' - 6"	23' - 6"					16.30
3S006I080R062.5	1453 + 00	684.30	663.80	17' - 6"	20' - 6"					14.70

For right foundation details see Sheet OS4-F3 Drilled Shaft Details.



Pipe Support Frames	cc	M	a	a/2
6"φ	7'-0"	9'-6"	0'-11"	5 1/2"
8"φ	7'-6"	10'-0"	1'-1 1/2"	6 3/4"
10"φ	8'-3"	11'-3"	1'-3"	7 1/2"
12"φ	9'-0"	12'-0"	1'-6"	9"

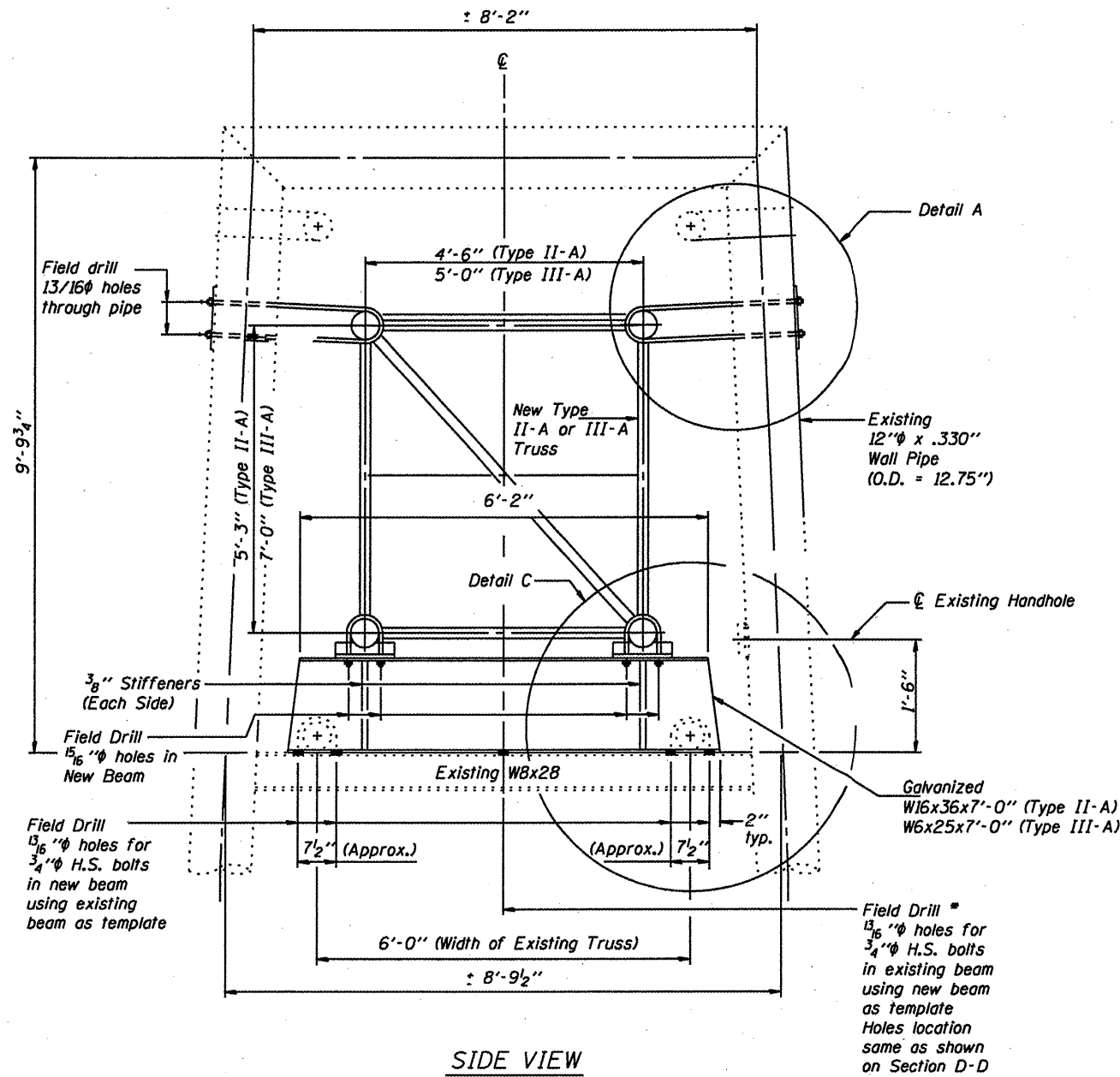
OVERHEAD SIGN STRUCTURES
MEDIAN SUPPORT FOUNDATION DETAILS

District 3
Sign Structure Replacement

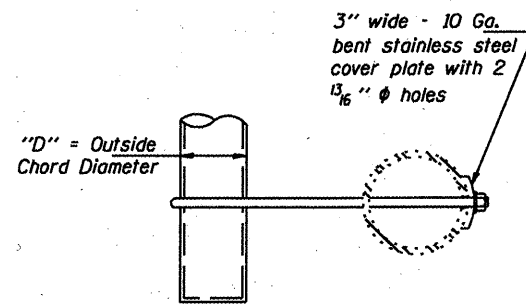
DESIGNED - _____ 20
CHECKED - _____
DRAWN - _____
CHECKED - _____

EXAMINED _____ ENGINEER OF BRIDGE DESIGN
PASSED _____ ENGINEER OF BRIDGES AND STRUCTURES

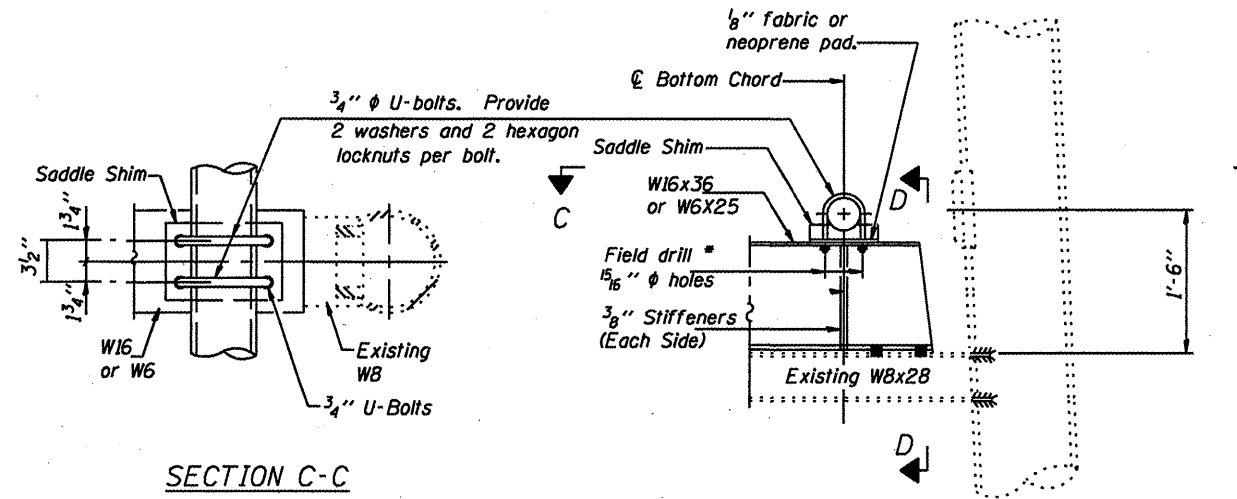
OS4-MED 5/16/08



SIDE VIEW

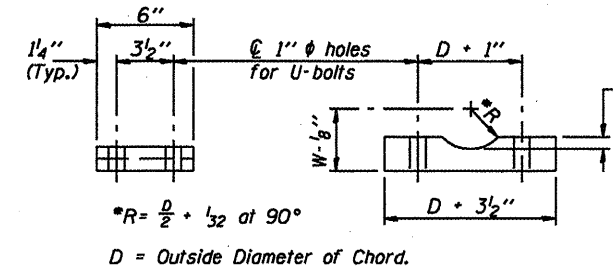


SECTION B-B



SECTION C-C

DETAIL C

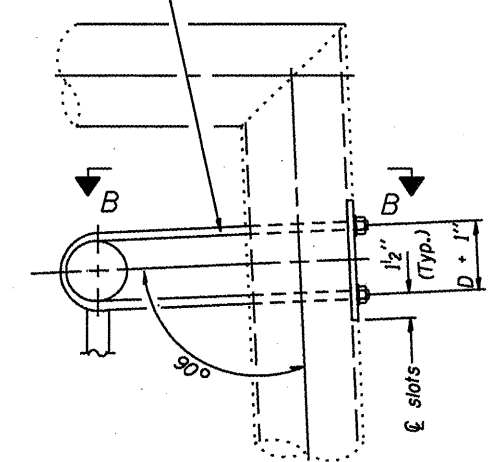


SADDLE SHIM DETAIL

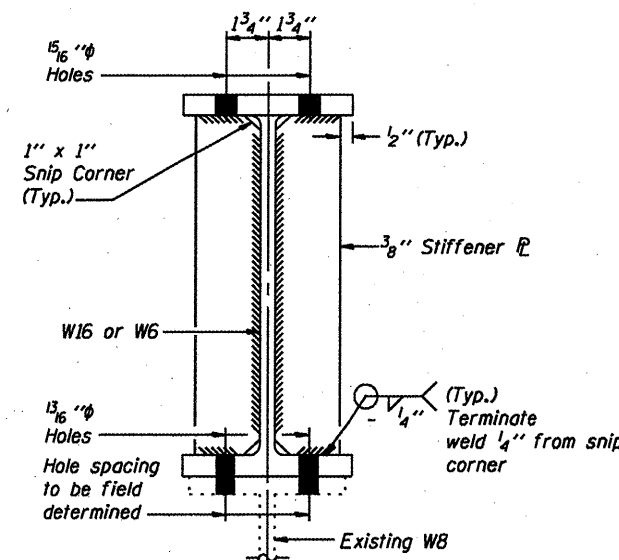
ASTM B26 Alloy 356-F
or
ASTM B209 Alloy 6061-T651
(4 required per sign truss)

Truss Chord Nominal Dia.	a	W
5 1/2"	1 3/16"	4 3/4"
6"	7/8"	4 3/4"
6 1/2"	1 5/16"	4 3/4"
7"	1"	4 3/4"
8 1/2"	1 1/4"	5 1/2"
9"	1 3/8"	5 3/4"

3/4" stainless steel U-bolt.
Provide two washers and two hexagon locknuts. Field drill 1 5/16" holes through pipe, (4 holes required per pipe)



DETAIL A



SECTION D-D

This detail applies to the following structures:

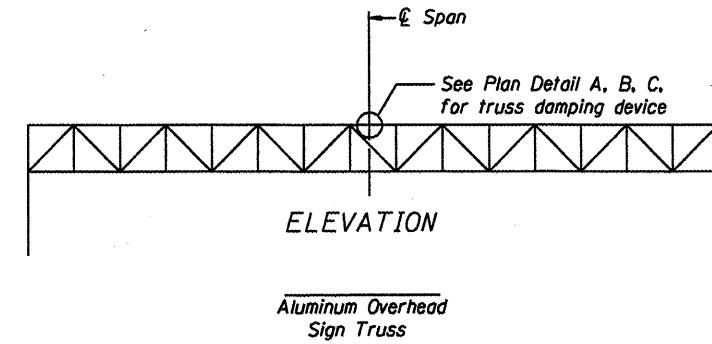
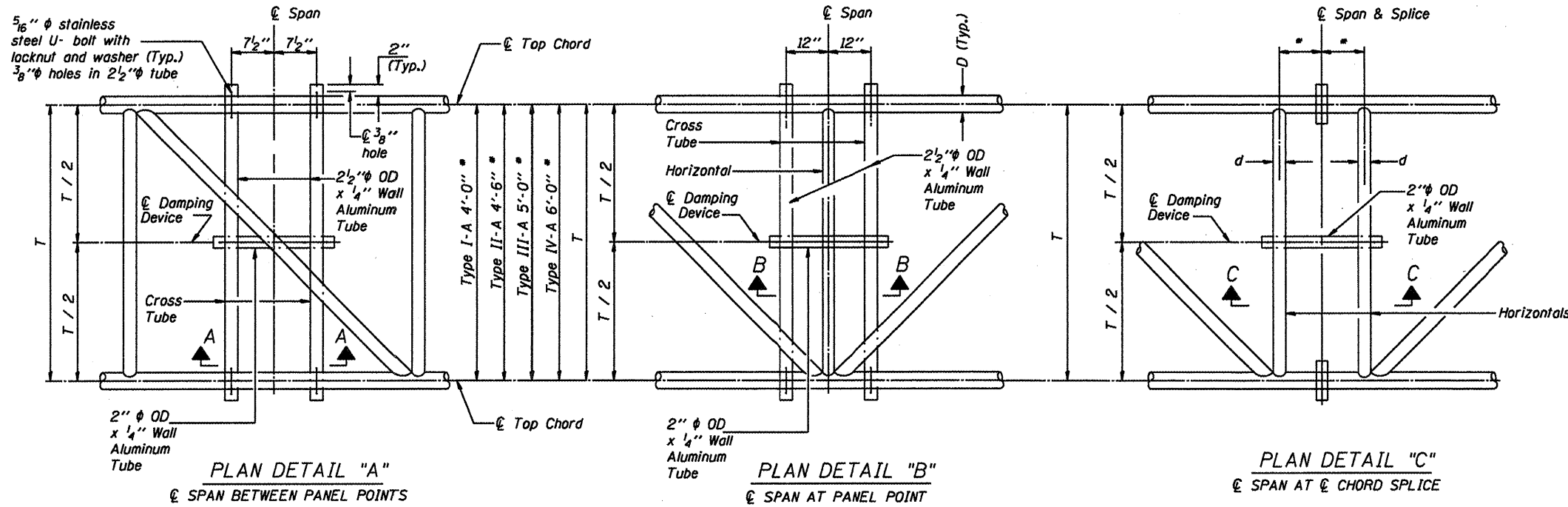
- Structure No. 3S050I080R078.1
- Structure No. 3S050I080L079.4
- Structure No. 3S050I080L080.0

OVERHEAD SIGN STRUCTURES
EXISTING SUPPORT FRAME
RETROFIT for ALUMINUM TRUSS

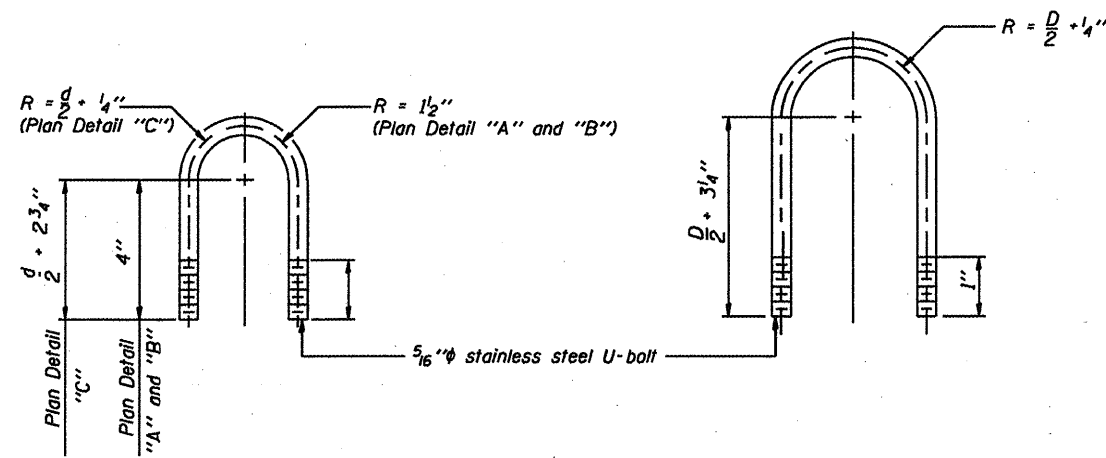
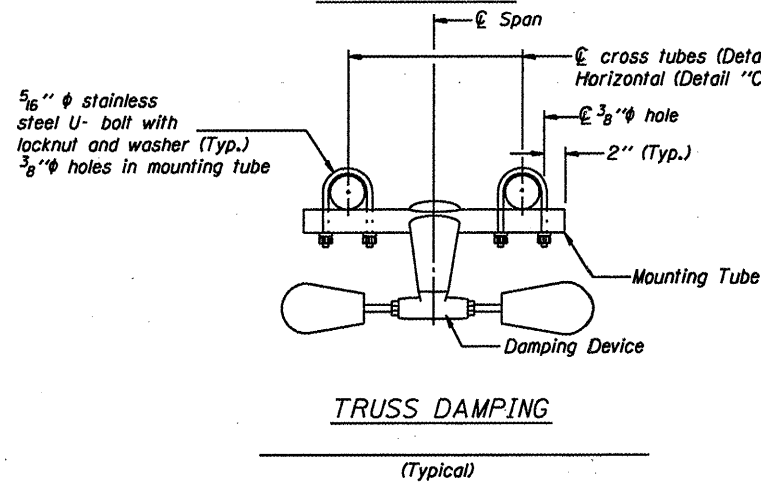
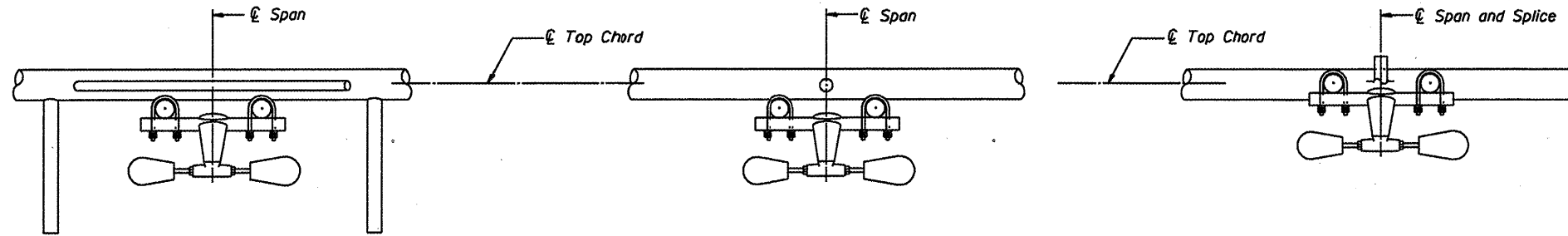
District 3
Overhead Sign Structure
Replacement

DESIGNED	20
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF STRUCTURAL SERVICES
	ENGINEER OF BRIDGES AND STRUCTURES

* Verify before drilling holes in mounting tube and cross tubes.



Note:
This detail applies to
Structure No. 3S0061080L062.5 only.



GENERAL NOTES

Damper: One damper per truss. (31 lbs. Stockbridge-Type Aluminum)
Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6
Fasteners: U-bolts shall be produced from ASTM A276 Type .304, 304L, 316 or 316L, Condition A, cold finish, or an equivalent material acceptable to the Engineer. All nuts shall be stainless steel conforming to ASTM A194, Grade 8 (AISI Type 304) or Grade 8F (AISI Type 303). The nuts shall be "locknuts" with nylon or steel inserts and semifinished hexagonal heads equivalent to the finished hex series of the American National Standards. All washers shall be stainless steel conforming to ASTM A240, Type 302 or 304.

**OVERHEAD SIGN STRUCTURE
DAMPING DEVICE**

District 3
Sign Structure Replacement

DESIGNED -	20
CHECKED -	EXAMINED
DRAWN -	PASSED
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES



Illinois Department
of Transportation
Division of Highways
District #1, Ottawa

SOIL BORING LOG

Page 1 of 1

Date 1/11/07

ROUTE I-80 DESCRIPTION I-80 near I-180: Sign Truss LOGGED BY Larry Myers
SECTION LOCATION SW 1/4, SEC. 6, TWP. 16N, RNG. 10E
COUNTY Bureau DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO.	Station	BORING NO.	Station	Offset	Ground Surface Elev.	DEPTH	BLOW	UCS	MOIST	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	DEPTH	BLOW	UCS	MOIST
3S0061080R060.7	Milepost- 60.7	1 EBL: Center Median	10' N, 22' W of existing		100.00	(ft)	(/6")	(tsf)	(%)	ft	ft	ft	ft	ft	Hrs.	(ft)	(/6")	(tsf)	(%)
		Augered, brown, Silty Clay Loam-fill								Very stiff, gray, Silty Clay Loam Till (continued)									
		Very stiff, brown, Silty Clay Loam-fill																	
		Very stiff, gray to brown, Silty Loam to Silt-Loess								Loose, gray, fine, Sand to coarse, Gravel Free water @ 23'									
		Very stiff, brown, Silty Clay Loam to Clay Loam Till																	
		Stiff, gray, Silty Clay Loam Till																	
		Very stiff, gray, Silty Clay Loam Till																	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



Illinois Department
of Transportation
Division of Highways
District #1, Ottawa

SOIL BORING LOG

Page 1 of 1

Date 1/22/07

ROUTE I-80 DESCRIPTION I-80 near I-180: Sign Truss LOGGED BY Larry Myers
SECTION LOCATION SW 1/4, SEC. 4, TWP. 16N, RNG. 10E
COUNTY Bureau DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

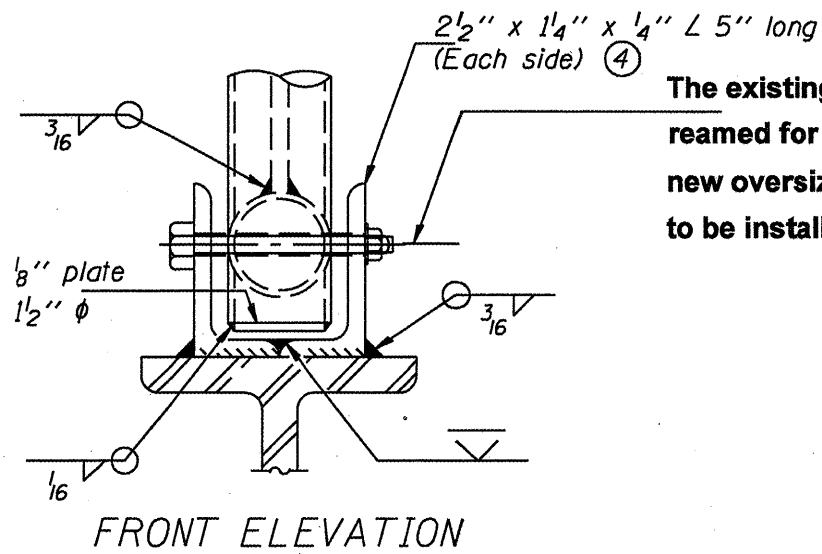
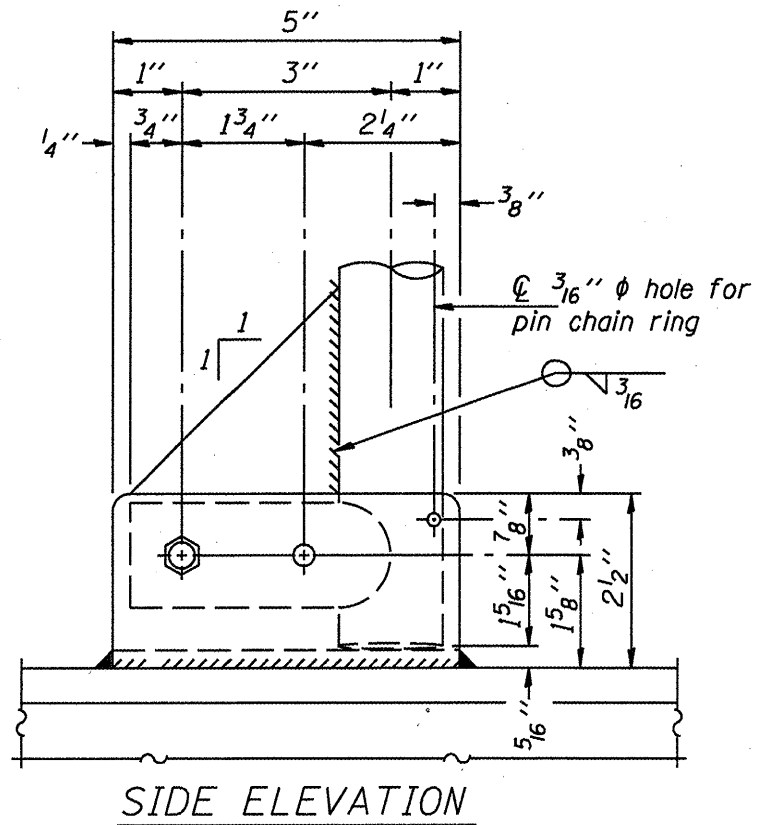
STRUCT. NO.	Station	BORING NO.	Station	Offset	Ground Surface Elev.	DEPTH	BLOW	UCS	MOIST	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	DEPTH	BLOW	UCS	MOIST
3S1061080L062.5	Milepost- 62.5	3 WBL: Center Median	25' W of existing		100.00	(ft)	(/6")	(tsf)	(%)	ft	ft	ft	ft	ft	Hrs.	(ft)	(/6")	(tsf)	(%)
		Augered, brown, Silty Clay fill																	
		Very stiff, brown, Silty Clay Loam-fill with Sand seams																	
		Stiff, brown, Silty Clay Loam Till																	
		Stiff, gray, Silty Clay Loam Till with very fine, Sand seams																	
		Stiff, gray, Silty Clay Loam to Clay Loam Till																	
		wh- weight of hammer																	
		Stiff, gray, Silty Clay Loam Till																	
		wh- weight of hammer																	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

DESIGNED	-	20
CHECKED	-	EXAMINED
DRAWN	-	PASSED
CHECKED	-	ENGINEER OF BRIDGES AND STRUCTURES

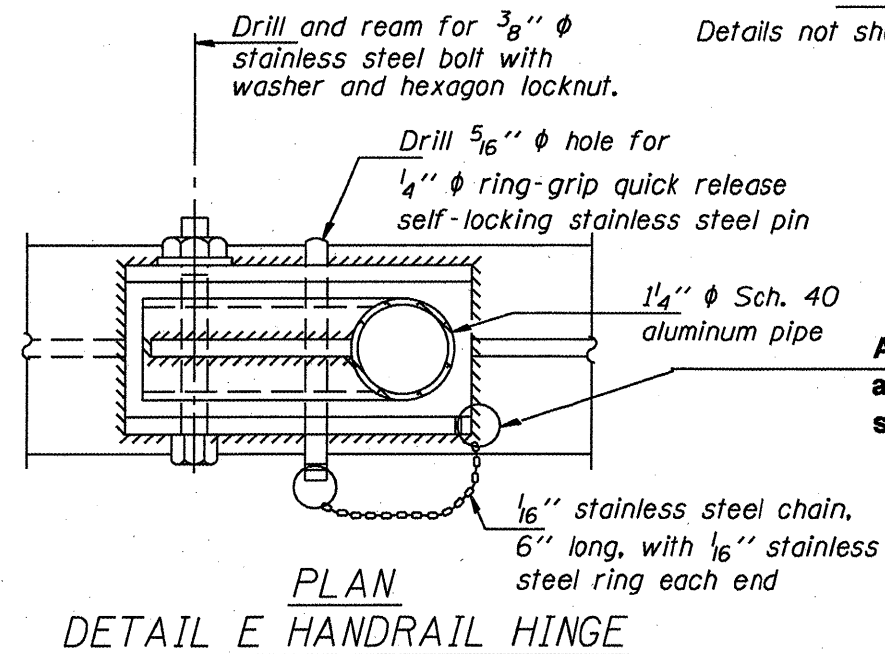
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI Route 80
D-3 OVD SIN STR REPL 2010-37
Bureau & LaSalle Counties
Sheet 19 of 19
Contract Number 46102



The existing locking pin hole to be reamed for proper alignment and a new oversized stainless steel pin to be installed.

Details not shown same as "ELEVATION" at right.



A new stainless steel chain shall be attached to the angle with a 1/16" stainless steel ring.

OVERHEAD SIGN STRUCTURES
HANDRAIL HINGE REPAIR DETAIL